INDIA RUBBER WORLD
CAOUTCHOUC GUTTA-PERCHA

Published on the 1st of each Month by
THE INDIA RUBBER PUBLISHING CO.
No. 25 West 45th Street, New York.
CABLE ADDRESS: IRWORLD, NEW YORK.

HENRY C. PEARSON, Editor

Vol. 51. OCTOBER 1, 1914. No. 1

SUBSCRIPTIONS: $3.00 per year, $1.75 for six months, postpaid, for the United States and dependencies and Mexico. To the Dominion of Canada and all other countries, $3.50 (or equivalent funds) per year, postpaid.

ADVERTISING: Rates will be made known on application.

REMITTANCES: Should always be made by bank draft or Postoffice or Express money order on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal Order, payable as above.

DISCONTINUANCES: Yearly orders for subscriptions and advertising are regarded as permanent, and after the first twelve months they will be discontinued only at the request of the subscriber or advertiser. Bills are rendered promptly at the beginning of each period, and thereby our patrons have due notice of continuance.

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Entered at the New York postoffice as mail matter of the second class.

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THE FLOOD-TIDE OF OPPORTUNITY.

SOMETIMES it happens that reasons, astronomical and meteorological, are combined to bring upon a coast a high tide, the memory of which lives in history, legend and song. Whether it brings disaster or opportunity, the high-tide of a lifetime or of centuries brings the time for action. This year of 1914 brings to American exporters a high tide of opportunity such as they have not known before and will not know again. They have had seven years of practically unchecked prosperity.

The old threats of unsettling the monetary standard are as dead as that of danger from the French and Indians. We have a financial law satisfactory alike to conservative bankers and to merchants anxious for expanded credits—a law which, in the opinion of most financiers, makes forever impossible the recurrence of the old-time panics. The Panama Canal has been opened, giving easy access to new markets and giving the American a position of vantage at the meeting place of the commerce of the world. The tariff law recently enacted opens our markets to return cargoes from the countries of the south—wool, meats, lumber and sugar being added to the free list, which already held the great staples of coffee, rubber and cocoa. Steps have already been taken under the new banking act to establish American branch banks in the most important cities of South America and such banks are certain to be multiplied, having close relations with the existing South American banks.

With this flood of opportunity comes the tremendous fact of the great European war, which in a moment absolutely annihilates the export trade of the country holding second place among the trading nations of the world. Until peace is declared, or there is accomplished the improbable event of Germany obtaining control of the sea, the great export trade of that country lies open to preemption on the part of whoever is sufficiently alert and enterprising for the task. The British are going after this trade with all the energy they may summon, but they have the distraction of a war which has threatened their national life and a war expenditure of not less than three million dollars a day, and they have plenty to do in looking after the trade which they already possess.

The old complaint of lack of direct lines is in a fair way to be obviated. Americans may now go into the markets of the world and buy ships as they may buy other things necessary to commerce and industry. Our country, during the next twelve months, will have more money free for the best-paying enterprise than all the rest of the world combined. Nothing stands in the way of a vast extension of American trade, except the failure of the manufacturers to take full advantage of their opportunity.

If they look for "easy money" by marking up domestic prices and say, "Who cares for abroad?" they will get their answer soon enough. They will enjoy their ease for a year or two and then find themselves hard pressed in their own markets by the competitors they have allowed to distance them in the trade which might have been theirs. They must go after the Spanish-American trade with promptitude and vigor. They must make immediate and intelligent effort to find what classes of goods are wanted in the various countries and send agents who speak Spanish and who understand the business and social customs of the people whose trade they are to solicit—not demand. They must get out attractive and intelligible catalogs in the language of the country to which they are going. They must take pains to fill the little orders with exactly the goods the customer desires. They must obey shipping directions implicitly and to the last letter. If they fail in this regard, they lose all that effort has gained. They must give as long credit as their customer has hitherto received from Euro-

pean houses. The new banking law will enable them to get the money necessary for this feature, if they should need it. For reasons not necessary to be described, the feeling toward us in Spanish-America is better than for a long time past. If the American manufacturers go into this magnificent market with the proper spirit—and manners—their children and their children's children will enjoy the profits of that trade.

THE WAR AND THE ENGLISH RUBBER TRADE

WHAT effect the war has had upon the rubber trade in Germany can only be surmised, as the channels of communication between that country and the outside world are to a great extent closed, but it can safely be conjectured that, outside of those lines that would contribute to the efficiency of Germany's military and naval operations, the rubber trade of that Empire is in a state of at least temporary paralysis. The effect of the war on the rubber trade in England is described in considerable detail in the letter which appears in this issue from our regular English correspondent. He states, as would naturally be assumed, that the companies engaged in the manufacture of rubber flooring for tents, motor tires for transport wagons and ambulances, rubber sheeting, elastic bandages for hospital use and other articles used by the army and by the Admiralty are running on government orders that keep them at full capacity during the entire twenty-four hours, but other companies whose products are intended for use in peaceful vocations are generally operating only on part time. This is due, to a certain extent, to the large number of men who have been withdrawn from work in the factory to go with the forces in the field—in one case a thousand employes having left a company for military service—but even to a greater extent this idleness is due to the decreased demand for merchandise generally.

The English manufacturers appear to have all the rubber that is needed under the present conditions of the trade, and with the exception of one chemical—zinc oxide—the English supply of which has come largely from Liege in Belgium, the supply of compounding ingredients promises to be ample. But the present situation in England is another illustration of the fact that while war excites certain lines of industry—those that contribute to military equipment—to feverish activity, the effect upon all other lines is deadening and in time disastrous.

MR. COWEN AND THE MARKS PROCESS.

IN the very interesting lecture delivered by Mr. L. J. Plumb before an English commercial school in England recently, the speaker said, speaking of the Marks alkali process: "It is probable that he received his first knowledge as to the effect of caustic soda on rubber from his superior, Mr. Robert Cowen. As early as 1890 Mr. Cowen in private conversations had discussed the possibilities of using caustic soda for reclaiming, and there is no question but he made a number of experiments along these lines."

It happens that the editor of THE INDIA RUBBER WORLD was a close friend of Robert Cowen and, living in Boston, was a very frequent visitor at the factory of the Boston Woven Hose & Rubber Co. When the little laboratory was first installed and the young men from the Massachusetts Institute of Technology brought in, he met them all and their work was thoroughly gone into. Mr. Cowen was a fine machinist and an inventor, but he was not a chemist. As the writer remembers it, he was wholly in favor of the acid process for reclaiming. When Mr. Marks succeeded with his alkali process and went on record as to its great future value, it was put down as a bit of youthful enthusiasm not to be taken seriously. When Mr. Marks resigned to join the staff at the laboratory of the Revere Rubber Co. his alkali process was not even considered. It was not until he had made a success of it that others were said to have suggested it, to have experimented along the same lines or to have anticipated him. Were Robert Cowen alive today he would in his frank way give Mr. Marks full credit for his process.

A WAR TAX ALTHOUGH NO WAR.

NOTWITHSTANDING the Government's determination to maintain strict neutrality during the present disturbed conditions in Europe, it cannot altogether escape the effect of those unhappy conditions. Customs receipts have fallen off to such an extent that the Administration has been compelled to cast about for sufficient revenue for the efficient operation of government functions. The measure before the Senate Finance Committee—known as the War Tax Revenue Bill—which is designed to raise a yearly revenue of about a hundred million dollars, lays a particular burden upon the brewer, wine grower, tobacco producer and purveyor of amusement. On the rubber manufacturer as such no special

burden is laid, but indirectly he, with all others actively engaged in the transaction of business, will have to pay a stamp tax on various documents—for instance, promissory notes, insurance policies, deeds and mortgages.

It is the contention of the minority party that the Administration might better economize in sundry directions than to increase tax rates, but economy is a virtue more generally preached by the opposition party than practised by the party in control. The subject of taxation is one that has received the best attention of the economists for generations but there is one variety of tax that none of them has yet appeared to be able to devise—a popular tax.

NORTH AMERICAN BANKS IN SOUTH AMERICA.

MENTION was made in the August issue of this publication of the purpose of the National City Bank of New York to establish branch organizations in Rio de Janeiro, Buenos Aires and probably other cities in the republics to the south.

American banks are greatly needed in South America. The European banking houses established there have hitherto accommodated the ordinary routine of American trade, but they have naturally withheld the full measure of interest and solicitous support accorded to enterprises of their own nationality. The English and German bankers have transacted the larger part of the business pertaining to foreign commerce and have steadily extended a network of branch banking institutions and exerted their influence to the advantage of European trade. European banks not only finance trade between their own countries and South America, but also between the various Latin-American nations. They supply their home offices with ratings and characteristics of South American firms and individuals. The German trade was extended largely by aid of longer credits than are granted by other countries, and German banks have been made more minute in their service and organization.

BRITISH WAR ON GERMAN TRADE.

BRITISH merchants and manufacturers have followed their government in declaring war on everything German. For the time being, Germany, as a competitor in foreign trade, is down and out. Except for an insignificant amount of trade going to Holland, Switzerland and Scandinavia, German exports can go only as far as her armies may march. In a few months, or years, peace will be declared and Germany will go out among the nations of the earth to pick up the trade she has dropped. Will she find it? The English are determined that she shall not. Newspaper organizations and private workers are calling with all their energy upon the British business men to deal a blow to the foe by going after the trade of Germany and Austria in every quarter of the globe. It is urged both as a patriotic duty and as sound business policy. It is held, looking from their own standpoint, of course, that they are engaged in a righteous war and that a blow which weakens the enemy is one which should be delivered if possible; that the great losses brought to them by the war they may honorably recoup in this way; that a realizing sense of the trade going to irrevocable loss will move the enemy to a desire for early peace, and that, finally, the British want all the trade they can get.

With characteristic British thoroughness, the campaign is being organized and forces mobilized for the attack. The Board of Trade has made special arrangements for an exhibition of samples of goods of German and Austrian make. Statistics of the trade of the hostile countries are furnished to the manufacturers, who thus can see the magnitude and location of each market and exactly what goods have been going there. Short of having the orders rounded up for them it is hard to imagine what further the manufacturers could ask. At the same time they are being warned that they have more to do than merely to pick up derelict trade. The Germans have been very thorough in their methods. The offer of unsatisfactory substitutes would be only a stop-gap performance, holding the customer for the German manufacturer until the latter was able to supply the customer's wants.

A heavy blow has been dealt to hostile foreign competitors by canceling, under certain conditions, "blocking" patents held by subjects of Austria and Germany. This was at first reported in such a form as to create a misapprehension. It is not intended to interfere with any patent under which active manufacture of the patented article is going on in Great Britain, but only with those which under British laws forbid the manufacture of an article which is made in Germany. Upon the payment of a fee of two pounds, any British subject can obtain permission to manufacture any article covered by one of these "blocking" patents. The applicant must also show his "bona fides" that he actually intends to carry out in good faith the manufacture which the patent has hitherto blocked. In the matter of drugs and chemicals this is likely to have an important effect, many articles essential to present-day arts being held as a close monop-

oly by German firms and sold at prices enormously in excess of cost and ordinary profit.

Manufacturers are just now inclined to hold back for assurances that if they put large capital into a new enterprise this capital will not be rendered valueless by an early peace and a restoration of the blocking patent. It is likely that these assurances will be given. In the meantime, the vast and well-oiled machinery of the British Consular Service will be working in every quarter of the globe in a way which can scarcely fail to be of as great damage to the German material interest as that being waged by the armed hosts now on the battle fields of Europe.

SHIPPING LATEX TO LONDON.

REPORTS which apparently emanate from London have recently come across the water to the effect that a group of English capitalists, having secured from an inventor a secret process for treating latex, intend to ship it direct from the plantations to England and convert it into rubber by this new process. All of which is interesting, but hardly likely to occur.

In the first place, the shipping of latex to London, New York and other points quite distant from the place of gathering is no novelty. To be sure it never has been shipped in large quantities, for there has been no reason to make such shipments, but wherever any quantity of latex has been desired for purposes of experiment or exhibition it has been found possible to ship it without having its qualities noticeably affected during transportation. And in the second place, there would be no advantage in shipping latex in bulk to a considerable distance from the plantation, for any process capable of converting latex into rubber in London would be capable of bringing about the same result on the plantation or in the forest.

GERMANY'S VAST MANUFACTURES.

THE stupendous German manufacturing trade which on the day that Emperor William handed his passports to the British Ambassador passed into the things that were, has a more than academic interest to a country like ours, which ranks fourth in manufactured exports among the nations of the world. Some day, we may be sure, Germany will again be one of the great exporting countries. But at the present time she may be considered as completely eliminated from the field of international commerce. Speaking in round figures, the exports of manufactured goods recently amounted to about two thousand million dollars a year for Great Britain, fifteen hundred million for Germany and seven hundred million for the United States—the exports of the latter being largely of a sort in which cost of raw material is the chief factor and not the "added value," which makes export trade profitable to the exporting nations. France has hitherto exported rather more manufactures than the United States, while Austria lags behind with less than half as much, or about $250,000,000. This is quite a tidy bit of trade, however, and it is prostrate along with that of Germany. A feature of great interest is the fact that fully ten per cent. of the great German export trade found a market in the British Empire. This trade is not readily going to Germany after the close of the war. In the British Colonies, in Spanish America and in the Far East there are rich markets waiting for somebody—markets which Germany supplied but can do so no more.

These statistics of German rubber manufacture are of special interest to readers of this magazine.

AT ANY RATE IT IS FINE FOR GUAYULE.

THE mighty conflict in Europe has put the Mexican situation very much in the background, but the turbulent little republic still goes on its merry revolutionary way. But in all this gratuitous—one might almost say grotesque—loss of life and property, the humble guayule shrub is deriving a distinct benefit, for it is getting a much needed rest. Three years ago, when the factories were busily extracting its rubber content, it appeared to be approaching a condition of practical extinction, but since the overthrow of the Madero regime the guayule shrub is about the only thing in Mexico that has been left undisturbed. It needed the rest badly and has used it to great advantage. When the Mexicans get tired out with shooting one another, as they will some day, and settle down for a brief period of tranquility, guayule should once more be an interesting feature of the rubber market.

THERE ARE FOUR LINES OF RUBBER MANUFACTURES IN which the Germans took the lead: Rubber Toys, Hard Rubber, Ocean Cables and Asbestos and Rubber Packings. With their export impossible and the factories idle, the opportunity for American and English rubber manufacturers is obvious.

TIRES ARE CONTRABAND BECAUSE THEY ARE A PART of military equipment. Why not because they are explosives?

What I Saw of the War.

By the Editor of The India Rubber World.

MORE than a year ago I promised to attend the Rubber Congress to be held in Java in September, 1914. It seemed more than likely that from that gathering would come an immense amount of good to the whole rubber planting world. It was up to the scholarly Dutch to solve the final problems and show the way to cheaper and better plantation rubber. That was expecting a great deal, but their record in cinchona and other tropical products justified such belief.

The Editor of The India Rubber World "On Watch."

To do my part I had, first, a hundred lantern slides to show the planters just how rubber was manipulated when it got to the factory; second, an essay showing what manufacturers desired in crude rubber, and, having acquired the cup habit, I had presented a cup. Moreover, although the committee had offered to give me a generous sum for expenses I had refused it. Hence, optimistic, sure of a welcome, positive that the congress would be great in results, I made ready to go by the shortest route. That was by an Italian line to Genoa, Italy, and thence by a Dutch boat to Batavia. Premonitions of evil I had none. Prophetic hints were of no effect. For example, Edgar Beecher Bronson, the war correspondent, the night before my departure said: "Sure you are not going into *'Closed Territory'?" I assured him that big game hunting or war would not come within my ken. Nor when Dr. Hornaday, sending me his book on the birds of Java, wrote on the fly leaf a happy phrase about my going to the "firing line" did it stir me.

ON THE DUCA D' AOSTA.

The embarkation was without tremor. Finding the one steward who would talk a little English and good Spanish we settled down to enjoy the trip. By a bit of good luck we became friendly with one of the wireless operators. He spoke English slowly, but wrote it exceedingly well, and was good enough to post the news in English for the benefit of the six English-speaking passengers. Five days out we learned that Austria and Servia were at war. There came reports of what Germany, Russia, France and England said they would do, if either of the others did certain things. Then the occupation of Belgium and the big war was on.

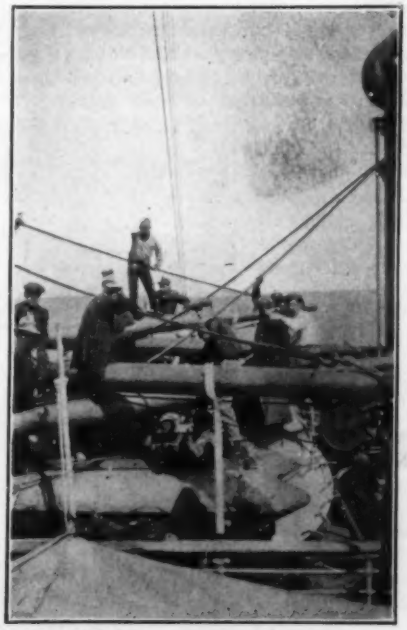
*Mr. Bronson's book "In Closed Territory" is a personal narrative of big game hunting in East Africa.

In spite of the excitement we played deck golf, wrote, ate three meals a day and enjoyed ourselves.

Passing Gibraltar at three in the morning a half dozen British war ships slid by and out to sea. Two days later out of the morning haze came a cruiser head on at full speed as if she meant to cut us in two. We stopped and signal flags bobbed up and down, and the wireless, frantically chattering, told the story of who and what we were. We satisfied the investigator, and in a curve that rolled up a huge wave she sheered off. Then as it grew lighter we saw that she was a scout for the French fleet, some fourteen vessels of which we could make out in the distance.

Our first call was at Naples, where the American Consul was discovered up to his eyes in work issuing passports and quieting hysterical women travelers. He had little news and no cables. The next day we reached Genoa, and gladly paid a bandit five lire (a dollar) to take our luggage off the ship and deliver it to a brigand who for another five lire took it into the custom house, where a freebooter put it on the baggage wagon for ten lire. We reached the hotel without further depletion of our store of ready money.

The next day things moved rapidly. First to the Dutch line, where a cable from Java announced that the Congress was postponed; then to the American consulate which was crowded with other Americans; and all we could learn was that we must report there every day. No bulletins, no news, no newspapers! Then to the bank to find that letters of credit were not honored.



Reservists on Their Way Home.

Mine host at the "Miramara" was a Swiss and, luckily, a fellow townsman of the late Dr. Jacques Huber, of the Museu Goeldi at Para. The mention of Dr. Huber's name worked wonders. My American money was taken or exchanged at full value. The assurance was given that we could have what we wished and pay whenever letters of credit were good again. Nevertheless I made the daily rounds of the banks, and finally things loosened up a bit; one gave five pounds, another four and one twenty. My request was always for fifty.

But Italy was mobilizing and war seemed imminent; so we decided to go either to England, Spain or Portugal. To the British consul we went, and he told us of the "Cretic" sailing the next day. A few quick trips to the American consul for

papers showing citizenship; to Cook's office for drafts for passage against my letter of credit; to the White Star office to exchange the drafts for tickets, and we were steerage passengers bound for England.

After a last visit to the cable office, that accepted money for cables that never were sent, we went aboard the boat, first buying steamer chairs, and prepared to make ourselves comfortable. It was easy to see that the boat was overcrowded, *ergo* so would the dining saloon be. Five dollars to the head steward placed us in the "first sitting." That meant breakfast at eight, instead of nine or ten. Then we hunted a good place for our chairs—one cool but not cold, and not likely to be swept by rain. Then we looked the baths over, and a very little figuring showed that many would perforce go bathless.

"PRINCIPE UDINE"—FIRST SHIP TO LEAVE GENOA WITH STRANDED AMERICANS.

THE "CRETIC"—THE FIRST SHIP TO LEAVE GENOA WITH BRITISH REFUGEES.

Then we faced the steerage. We were located in Compartimento 2, Cuccetta N. 5 and 6. It took some time to find it, but by getting the stairways located, and guided by the galley smells first and the bilge odor second, it became in time quite easy. It was bad, but not so awful bad—better at least than many of the Central American boats, for there were no pigs, dogs, crying babies or seasick women. There were several fleas, and one could find bedbugs, and that in spite of the formaldehyde odor that spoke of recent fumigation. Naturally the steerage was in the bowels or rather the intestines of the ship. Our "compartimento" was a big room, filled with racks made of gas pipe, double tiered, on which lay narrow burlap mattresses filled with hay. On each was a red woolen blanket and a single white sheet—clean, too. The ports were open and the air was warm, but sweet. We did not sleep there, preferring to take mattresses and blankets up four flights of slippery stairs and camp under the stars. As cabin passengers and all felt the same way, the decks were fairly well cumbered, and a wonderful variety of pajamas and bath robes was displayed.

There were only eighty Americans, and the six hundred Britons took the whole affair as a matter of course, so there was no guying and little horse play, and soon the whole proceeding became, as matter of fact as if it had been a lifelong custom. There was one break in the solemnity. A huge man, said to be a distinguished scientist, elected to bed down on a hatch, where the smoking-room lights were brightest. He wore a thin cotton nightshirt only, and as he stood up to make his bed his anatomical idiosyncrasies were plainly displayed. An occasional wet sponge thrown by a compatriot, and the sewing up of the nightshirt in no way discomposed him, and he continued his shadowgraphs to the end of the voyage.

Most of the regular crew had gone to the wars and the riffraff that were shipped in Genoa were very able and persistent thieves. They went through the steerages and looted trunks and stole suitcases, until one hundred of us were made special police. We stood two-hour watches, day and night, and thus put an end to their thieving. Stewards were few and overworked (so were bath towels), and passengers turned to and wiped dishes. Indeed, the American ladies, too, both wiped and swiped, for guests though we were the souvenir instinct was too strong to be resisted, and after-dinner coffee cups and spoons disappeared like magic. This, too, in spite of the fact that the bulletin board in the main saloon bore these verses:

THE MIDLAND ADELPHI HOTEL, LIVERPOOL.

Moses, lawgiver for all time,
Wrote for the sons of men

A model code of moral laws—
The old Commandments, ten.
"Thou shalt not steal" seemed plain enough,
To this clear-minded seer;
Today we feel he should have said
"Thou shalt not souvenir."

We were sailing under "sealed orders" for England, but whether London, Southampton, Liverpool, or other port, none knew. Reaching Gibraltar, Liverpool was announced as the destination. Thereafter we stole along through the night, ports shrouded, deck lights out, and blankets hanging on the smoking-room windows. About noon each day a battle-ship appeared and telegraphed the course for the next twenty-four hours. No news, or next to none, was received, as the wireless was used only for admiralty purposes.

READING THE WAR NEWS—A COMMON SIGHT IN ENGLAND.

Among the British passengers were many whom I knew—rubber planters from the Malay States, a young Englishman connected with the Booth office in Para, the superintendent of public works in Barbados, and so on. A Boston Minot, one of the editors of the "Youths' Companion," organized the Free Masons aboard, some sixty in number, one-half of whom were English and the rest Americans, and a sort of informal lodge meeting was held daily, where we all became well acquainted.

By Spain and Portugal we ran and finally reached the mouth of the Mersey. Presumably it was defended by mines, for we were guided by wig-wags, on boats stationed at intervals, and we zig-zagged slowly along, and at seven in the evening made fast to the pier. A wait of two hours ensued for the discharge of the luggage. Once ashore, instead of the usual orderly British custom house, we found a mob of frantic passengers, harassed officials and incompetent porters. The war had taken baggage trucks and men, and upset all system. At eleven o'clock our baggage was cleared, loaded on taxis, and hotel hunting began. All of the large hotels were choked with Americans—so full that it was hard work to get anything to eat. The little commercial hotels, the temperance hotels, and the pensions were equally congested. Finally, at two in the morning, beds were found in a boarding house, and we slept the sleep of the "bust."

SOLDIERS DRILLING ON THE GOLF COURSE, ENGLAND.

It looked as if real hardships were in sight, but the next morning I met by accident a rubber friend, who hurried to the Adelphi Hotel—one of the best in Europe—secured the rooms of some Americans who were leaving that day, brought around fifty pounds in English money, and did his best to make us comfortable. The next day, by special favor, the banks allowed me to draw all I needed on my letter of credit.

A brief look at English business convinced me that there was little doing in any line, so passage home was negotiated. So crowded were the outgoing boats that Deck "D" on the old "Campania" was the best in sight, and I received it thankfully.

I was not the only rubber man caught by the war. I heard of numbers of them, and found that F. C. Hood was also quartered at the "Adelphi." He had been caught in Berlin, and with his wife and son journeyed to Norway, there taking ship to a port in Scotland. The Hoods also slept on deck, and arriving at the Scottish port were forbidden to land—army orders. Mr. Hood managed to get ashore, saw the chief of police, and arranged that in the event of the boat leaving that evening for Norway, they be arrested and taken to the police station for examination. This ingenious plan, however, was not necessary, for at the last moment the rule was waived and they came ashore.

With some time on my hands, I visited rubber stores, general stores, talked with manufacturers and filled up on information.

VESSELS OF THIS SORT ARE MORE OFTEN SEEN THAN MERCHANTMEN.

Again and again the question was asked: "Where in America can I get this?" "What rubber manufacturers make that?" And I gave addresses by the score. The interest seemed chiefly to center about small specialties in hard rubber and grades of

garden hose, stoppers, etc., that had been aforetime purchased in Germany. Finally we embarked, and except for the bad air down on deck "D," were comfortable. As for dangers, there were none apparent, in spite of shrouded lights and top speed.

The tales of war experiences on the part of other travelers are many, and have been told and retold in the daily press.

The Campania Crowded with Americans.

One thing was patent, however, and biased the judgment of all —the { English / German / French } were mighty good to Americans and the recipients of courtesies believed that they would win.

SOME LIGHTS ON THE WAR.

THE editor of The India Rubber World talked with many in the trade during his recent stay in England. Some of the views are embodied in the following paragraphs:

The head of an English firm who sold supplies to rubber companies on the Continent, said:

"Two months ago I had an income of £30,000 a year. Today I am out of business. My factories are shut down and I cannot pay my clerks. Thousands and thousands of pounds owed me on the Continent are absolutely lost until the war is over, and no assurance of ability to pay even then.

"If I were young enough I should enlist to fight the Germans, or, rather, the German military idea. I know that at heart my many friends among the German manufacturers are not my country's enemies. This war was not of their seeking. It is a terrible setback for the rubber industry."

Another said: "I am running day and night shifts getting out truck and ambulance tires. Most of the good motor buses and motor trucks in England, as well as many motor cars, have been commandeered by the government. They took over all the stocks of tires that were in sight, English, French, German and American, but that was not half enough. So we are striving to make up the deficiency."

Still another said: "My best men have enlisted, but as orders are slack we get along running about half time. Hope the war is a short one; else we shall lose heavily."

Still another said: "We are busy, but are nevertheless helping our men to enlist. Numbers of us belong to a Trade Association, and we guarantee the following to men who are eligible for the army or navy:

"(1) A minimum of four weeks' full wages from the date of leaving; (2) re-engagement on return guaranteed; (3) half-pay during absence from duty for married men from date when full pay ceases; (4) special arrangements with single men who have relatives entirely dependent upon them; (5) after war, all Territorials to be given three weeks' holiday, provided that two weeks are spent in camp. The response has been quick and satisfactory, and already several hundreds have expressed their intention of enlisting, and the numbers are rapidly growing."

A young aviator who was for some time a rubber worker sent home the following from France, as an accurate summing up of the relative efficiency of French and German types of dirigibles:

"French airships have been doing excellent work, and have so far escaped unscathed, although often under fire. One of them, starting from Maubeuge, flew over Treves and beyond, returning safely to its shed. On the other hand, we have bagged several Zeppelins.

"The reason for this apparent invulnerability of the French airships is simple. By reason of the elasticity of our gasbags we can safely maintain a very high altitude, beyond ordinary gun range. This is impossible with the rigid shell of the Zeppelin, which cannot bear the expansion of gas, more particularly in this hot weather; so the French have a distinct advantage in airships."

The cancellation of German patents was thought a good move by most, but one cable manufacturer said:

"We own the British rights for an important German patent. Now I wonder if that will be cancelled. And if it is, what can we do about it? We paid thousands of pounds for it. I fancy there will be many such cases."

Regarding the cargoes of seized ships the Foreign Office publishes in the "Supplementary London Gazette" as full a list as may be. The Government is also soon to publish a list of those detained in Belgian, French and Japanese ports. Seized ships are brought before the regular prize courts, and those interested in the cargoes are represented by attorneys at these courts. If the goods are not contraband they are speedily released.

A British manufacturer wrote to the "London Times" this regarding the great Siemens Cable Works:

"According to Somerset House, the great and old-established firm of Siemens Brothers (Limited), of Woolwich, has a paid-up capital of £600,000 in 120,000 £5 shares, and of these 120,000 shares no fewer than 70,782 are held by members of the Von Siemens family in Berlin, the address being 'Verwaltungsgebäude Siemensstadt bei Berlin' (Administration Building, Siemenstown, near Berlin.). That is to say, Messrs. Siemens Brothers (Limited), of Woolwich, are absolutely controlled by the immense Siemens and Halske concern in Berlin. Out of 49,000 odd shares held in this country, about 39,000 belong to two gentlemen whose affiliations are certainly German. The 70,000 odd shares held in Berlin probably represent a steady drain of somewhere about £35,000 a year from this country to Germany from one firm alone, and without a solitary countervailing advantage.

"That is a sufficiently serious matter, but the interesting point to which I think public attention should be drawn is that it is stated in technical circles in London (with what truth I know not) that the British Government has given large orders for war material to Messrs. Siemens Brothers because the Government cannot help itself. It must have the war material, and the big British firms are working night and day on Government orders and can do no more. In other words, a considerable portion of the profits from British orders for war material to fight Germany will go to Germany to help Germany to fight us."

In the same issue appeared a list of other German-owned firms, among which were: The Continental Tyre and Rubber Co. (Great Britain), Limited, with a capital of £25,000, £24,000 of which is held in Germany;

The British Ceresit Waterproofing Co., Limited, capital £5,000, £4,950 held in Germany;

Calmon Asbestos and Rubber Works, Limited, £30,000, all held in Germany;

Armaduct Manufacturing Co., Limited, capital £6,651, £5,252 held in Germany.

Regarding debit and credit accounts between belligerents the managing director of Nicholson's Raincoat Co., Limited, offers the following:

"According to figures extracted from Whitaker, the imports from Germany to this country for the year 1913 were £70,000,000, and our exports to Germany £59,500,000; therefore we may assume that we are debtors to Germany on balance by about £10,500,000.

"Further, if we allow an average of two months for settlement of accounts, it would appear that one-sixth of the annual turnover of £130,000,000 is constantly owing. Therefore there is in suspension at the present time probably £21,000,000 debtor and creditor between Great Britain and Germany alone. By the proposed scheme this sum could be quickly liberated, to the immense benefit of commerce and industry in our own country.

"In the case of my firm, we are creditors to a considerable amount and if we could receive this sum from firms who are debtors, through the medium of a clearing-house, it would enable

us to provide further occupation for our 500 workpeople and thus help the nation generally."

In spite of the appeal on the part of American users, England has definitely stopped the export of aniline oil.

Prof. Atwood, of the American Association of Commerce, Berlin, known to many in the rubber trade, did good work in helping stranded Americans during the first of the war panic.

Some one played a mean trick on an Akron youth, employed in a British rubber factory. As he was about to start off on a vacation, he was ordered to appear at police headquarters, where information had been lodged that he was a German, and that he had not registered. In spite of his protestations he was ordered not to go more than five miles from the station, and his vacation trip became impossible.

Ernest E. Buckleton, president of the Northwestern Rubber Co., Limited, is doing a lot for the Red Cross, furnishing yarn for socks, material for bandages, and enthusiastically stirring up volunteer workers to prepare these materials.

The report that Germany had hundreds of tons of synthetic rubber and that domestic factories were using it in lieu of natural rubber and thus suffering no inconvenience is generally discredited in England.

Dr. Joseph Torrey, at Litherland, is editing the papers read at the last London Rubber Exhibition preparatory to issuing them in book form. He is greatly handicapped by the impossibility of securing corrected proofs from authors resident in France, Belgium and Germany.

EUROPEAN RUBBER NOTES UNDER WAR CONDITIONS.

During one of the battles near Muelhausen, Alsace, the villa of George Chatel, director of the Automobile and Aviation Co., of that city, was struck by a shell and Mr. Chatel and his wife both killed.

The Agricultural and Industrial Exhibition which was to have been held in Rovno, Russia, this fall, has of course been postponed. If the conditions warrant it, it will be held from August 28 to September 15, 1915.

The India Rubber, Gutta Percha and Telegraph Works Co., Ltd., of London, will pay half wages to the wives and families of all its employes who enlist in the service, and employment will be found for them on their return.

Owing to the important foreign contingent in Mincing Lane, many of its representatives have been called to arms by one or another of the belligerents. Among them is Mr. Robert Kahn, of Hecht, Levis & Kahn, who has been summoned to the French colors.

It is reported that M. Michelin, of Clermont-Ferrand (France), the tire manufacturer, has established a fund equaling $200,000 for the benefit of French aviators who may perform acts of exceptional heroism during the war.

REDUCTION IN BRITISH RE-EXPORTS OF RUBBER.

The more immediate effect of the war upon the English rubber market is shown by the re-exports to other countries from England during the month of August of the years 1913 and 1914.

		1913.	1914.
Russia	*pounds*	1,286,200	63,200
Germany		1,602,500	652,500
France		876,200	467,900
United States		4,242,100	2,184,600
Other countries		1,010,600	474,300
Total		9,017,600	3,842,500

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

THE WORLD'S MERCHANT MARINE.

NOW that the opportunity has arisen for greatly increasing the merchant marine of the United States—a development which has been desirable for a great many years—it is interesting to glance at the present merchant marine of the leading countries of the globe, and to compare it with conditions a generation ago.

The world's merchant marine statistics issued not long ago by the French Registry Office gave the total number of steamers and sailing vessels forty years ago and at the present time, or, more accurately, just prior to the outbreak of hostilities, as follows:

1874-75 Sailing vessels, 59,280; with average of.....14,521 tons
Steamers 5,365; " " " ..... 3,424 "
1913-14 Sailing vessels 21,924; " " " ..... 5,630 "
Steamers 17,135; " " " .....23,841 "

The following statement is given of the mercantile marines just prior to the war, of England, Germany, France and the United States, in the two classes:

	Sailing vessels, 1914.	Steamers, 1914.
England	4,945	6,594
Germany	1,041	1,510
France	877	612
United States	2,993	1,103

STATISTICS OF STEAMERS.

Figures of the number of mercantile steamers belonging to 16 nations, early this year, were as follows:

	Steamers, 1910.	Steamers, 1914.
England	5,453	6,594
Germany	900	1,510
United States	551	1,103
France	526	692
Norway	657	1,266
Japan	332	803
Italy	258	537
Holland	224	451
Sweden	497	940
Austria	167	315
Russia	435	622
Spain	377	438
Greece	108	312
Denmark	318	470
Belgium	73	132
Various countries	580	890

Thus while England had 6,594 mercantile steamers, Germany had 1,510, France 692, Russia 622, Italy 537 and Austria 315.

THE WAR AND THE ENGLISH RUBBER INDUSTRY.

According to English advices, the ordinary cotton goods trade has been at a standstill, while the demands for government purposes have been of an unprecedented character. This applies specially to goods for hospital purposes.

The rubber industry in general has important orders for the various government departments affected by the war. These include equipment for the motor trucks and commercial vehicles now being ordered largely to replace the horse-drawn vehicles taken for military purposes. Permanent benefit is expected to the rubber trade from the impetus thus given to the motor for commercial purposes. Among the government contracts which have been received is one placed with the Dunlop company for 10,000 pneumatic tires. The Midland Rubber Co., which had been supplying the government's requirements in solid tires for army transports, has had a marked increase of that business. Orders have also been received from the government for miscellaneous rubber products.

The Foreign Trade of the Belligerent Countries.

ONE of the questions naturally suggested at the outbreak of hostilities in Europe has been the effect, immediate and more remote, on the foreign trade of the countries involved. The foreign trade of Germany, of course, for the time being is non-existent, and the commerce of England, France, Austria and Russia is naturally very much reduced. But the particular feature of this situation that interests American manufacturers is to discover if possible how much of this international trade hitherto enjoyed by these different countries can be secured for the United States and how much of this new business will remain permanently in this country after the restoration of peace.

The first step in the discussion of this matter is to review the character and extent of the imports and exports of the European countries particularly concerned. With that in view tables have been prepared, which are given below, showing briefly the entire volume of imports and exports of England, France, Germany, Belgium and Austria, and more particularly the exports of rubber manufactured goods from the first three.

TOTAL COMMERCE OF THE BELLIGERENT NATIONS.

THE table below gives the total imports and exports of the various countries now at war, including merchandise of every kind. The values are given in United States currency.

	Imports.	Exports.
Great Britain, 1913	$3,845,169,795	$3,175,585,670
France, 1913	1,700,000,000	1,260,000,000
Germany, 1913	2,673,750,000	2,478,150,000
Austria, 1911	667,000,000	516,200,000
Belgium, 1911	870,135,289	691,007,450
Servia, 1911	22,277,105	22,564,856
Russia, 1911	526,690,500	770,555,500

United States, 1913-14 (for comparison): Imports, $1,893,925,657; exports, $2,364,579,148.

ENGLISH EXPORTS OF WATERPROOFED GARMENTS.

For the First Six Months of 1913 and 1914.

The values are given in currency of the United States, taking the present exchange basis of a pound, viz., $5.

To—	1913.	1914.
France	$37,425	$49,585
British South Africa	65,565	62,995
British East Indies	104,985	118,785
Australia	109,130	146,465
New Zealand	180,115	78,480
Canada	873,235	629,725
Other countries	1,306,487	1,342,540
Total	$2,676,942	$2,428,575

ENGLISH EXPORTS OF RUBBER FOOTWEAR.

To various countries not specified. For first six months of this and last year.

	1913		1914	
	Pairs.	Value.	Pairs.	Value.
British manufacture	620,808	$275,660	653,268	$307,685
Foreign and Colonial manufacture	38,424	30,790	26,616	11,190

ENGLISH EXPORTS OF RUBBER TIRES.

To various countries not specified. For first six months of this and last year.

	1913.	1914.
Rubber tires and tubes, British manufacture	$1,979,925	$1,493,260
Foreign and Colonial manufactures	8,460	8,580

ENGLISH EXPORTS OF OTHER RUBBER MANUFACTURES.

To various countries not specified. For first six months of this and last year.

	1913.	1914.
Rubber manufactures (except waterproofed apparel, footwear and tires), British manufacture	$4,264,310	$3,771,925

FRENCH EXPORTS OF RUBBER GOODS FOR 1913.

	Tons.	Value.
Elastic fabric	143	$587,200
Elastic piece goods	35	90,600
Belting, hose, valves, etc., of rubber, whether or not combined with other materials	1,509	2,935,000
Card clothing	3¾	7,800
Rubber clothing	83¾	384,200
Rubber footwear	65	100,400
Tires, covers, etc., for vehicle wheels	4,993	17,826,000
Asbestos manufactures, spun, woven, or molded	2,570	1,218,400

GERMAN EXPORTS OF RUBBER AND ALLIED MANUFACTURES.

THIS table, based on the latest available statistics, shows the annual value of the exports from Germany of crude rubber, rubber manufactured goods, accessory materials and articles with which rubber is closely associated. It shows also the countries to which these exports went.

TO OTHER EUROPEAN COUNTRIES.

	Value.
England:	
Raw materials—Rubber	$1,727,610
Gutta percha	140,125
Accessories—Palm oil, unrefined	952,965
Linseed oil, pure	907,370
Rape seed oil	290,695
Other seed oils	492,005
Plumbago	131,725
Wax (including ozokerit)	597,270
Pitch, other than coal pitch	181,810
Zinc manufactures	1,308,870
Chemical manufactures (not otherwise specified)	5,137,430
Apparel—Including rubber garments	6,529,885
Rubber boots and shoes	189,575
Small wares—Buttons and studs (not of metal)	1,465,740
Toys and games	5,452,670
Vehicles—Cycles (other than motor) and parts	708,175
Motor cars, motorcycles and parts	6,493,040
Electrical—Goods and appliances (other than machines)	4,470,050
Instruments—Scientific apparatus and parts	3,264,865
Mechanical—Machinery belting	484,085
Machinery (not otherwise specified)	7,659,915
Manufactures—Rubber manufactures (not otherwise specified)	1,574,360
Norway:	
Raw materials—Rubber	468,140
Smallwares—Buttons	130,600
Toys	32,653
Vehicles—Motor cars	132,790
Motor vehicles for passenger traffic	9,620
Bicycles and parts	85,305
Electrical—Cables and wire	720,790
Manufactures—Rubber goods	327,991
Spain:	
Vehicles—Carriages, bicycles, motorcycles, motor cars and aeroplanes	309,156
Electrical—Electrical goods	3,841,238
Italy:	
Instruments—Electrical	9,112,350
Manufactures—Manufactures of rubber	3,029,226
Portugal:	
Vehicles, instruments and machinery	682,791
Rubber	3,405
Roumania:	
Electrical—Cables	595,800
Apparel—Shoes	87,000
Vehicles—Motor cars	114,000
Russia:	
Apparel—Clothing, including rubber clothing and buttons	5,511,500
Instruments—Scientific apparatus and instruments	5,827,845

TO SOUTH AMERICA.

Argentina:	
Raw materials—Rubber	33,815
Smallwares—Buttons	248,463
Toys	504,910
Electrical—Appliances and sundries	500,759
Accessories for underground cables	392,929
Electric wire and cables	1,272,222
Telephone apparatus	38,562
Insulating tubes	86,825
Instruments—Chemists' sundries and apparatus	402,547
Mathematical and surgical instruments	154,313
Mechanical—Railway materials	246,075
Mining materials	106,404
Cotton belting	124,752
Manufactures—Combs	75,646
Handles, various	15,515
Rubber tubes	101,926
Gutta percha and rubber goods	182,475
Erasing rubber	24,846
Floor cloth	86,617
Bolivia:	
Manufactures generally	5,203,631
Brazil:	
Accessories—Chemicals	1,901,203
Smallwares—Buttons	135,585
Toys	489,224
Electrical—Cables	51,501
Instruments—Scientific instruments and articles	197,076
Mechanical—Rubberized plates and sheets	4,153
Manufactures—Manufactures of rubber	297,622
Medical—Surgical instruments and articles	197,076
Dental instruments and articles	24,526
Paraguay:	
Apparel—Clothing	37,595

TO NORTH AND CENTRAL AMERICA.

Canada:	
Apparel—Braces and suspenders	1,326
Smallwares—Buttons and materials	43,837
Manufactures—Combs for dress and toilet	69,228
Elastic, round and flat	612
Crude—Rubber and gutta percha, free	53,087
Manufactures—Rubber and gutta percha manufactures (not otherwise specified)	50,463
Smokers' articles	11,426
Webbing, elastic and non-elastic	13,174
Panama:	
Textiles—Textiles and textile manufactures	123,771
Nicaragua:	
Rubber and celluloid goods	2,504
Cuba:	
Details not specified—total imports from Germany	7,847,765
Costa Rica:	
Details not specified—total imports from Germany	1,785,591

TO ASIA, AFRICA AND AUSTRALIA.

India:	
Vehicles—Cycles	77,905
Motor cars and motorcycles	195,760
Rubber manufactures	74,285
China:	
Raw materials—India rubber and gutta percha	3,204
Smallwares—Toys	24,192
Electrical—Electrical materials and fittings	360,652
Vehicles—Motor cars	19,950
Motorcycles	2,022
Velocipedes, bicycles, etc.	7,150
Instruments—Instruments and appliances	72,264
Mechanical—Machine belting, etc.	6,780
Manufactures and apparel—Manufactures, including boots and shoes	19,642
Tobacconists' sundries	12,715
Toilet requisites	8,760
Persia:	
Details not specified—total imports from Germany	388,285
Egypt:	
Details not specified—total imports from Germany	7,783,245
Japan:	
Raw materials—Crude india rubber and gutta percha	10,425
Asbestos and manufactures	36,429
Apparel—Suspenders	1,267
Smallwares—Toys	30,091
Vehicles—Automobiles and parts	93,690
Cycles and parts	205,185
Electrical—Insulating tape	1,410
Insulated electric wire, armored	681,630
Telegraphic or telephonic instruments and parts	5,114
Mechanical—Woven machinery belting and hose	100,338
Card clothing	23,283
Manufactures—Elastic webbing	30,024
Manufactures of india rubber and gutta percha	73,313
Textile—Tissues not otherwise provided for	2,401
Medical—Waterproof tissues	1,610
Surgical or orthopædic instruments	34,876
North Rhodesia:	
Smallwares—Toys and fancy goods	2,955
Electrical—Electrical fittings (not otherwise specified)	1,030
South Rhodesia:	
Electrical—Electric cable and wire	15,935
Mechanical—Engine packing	8,120
South Africa:	
Raw materials—India rubber	13,240
Asbestos and manufactures	5,575
Apparel—Slippers, plimsols, Chinese footwear, etc.	8,610
Smallwares—Toys	221,975
Vehicles—Bicycles, tricycles, etc.	71,715
Mechanical—Conveying hose	39,050
Machine belting, etc.	14,980
Battery cloth	2,215
Engine packing	24,495
Medical—Surgical and dental appliances	17,740
Australia:	
Accessories—Glue and cements	25,375
Apparel—Clothing (including rubber garments)	2,013,790
Vehicles—Bicycles and parts	52,900
Electrical—Electrical and gas appliances	304,610
Electrical materials	296,440
Mechanical—Rubbered belting	13,150
Rubbered leather	7,445
Manufactures—Printers' material	448,695
Toilet combs	60,515
Floor cloth	30,470
Textile—Rubbered waterproof cloth	1,109,195
Medical—Optical, surgical and scientific instruments	500,570
New Zealand:	
Apparel—Apparel, including hats and caps	23,905
Vehicles—Autos, motor cars, etc	90,735
Bicycles and tricycle fittings	99,750
Manufactures—Fancy goods and toys	185,265
Rubber and celluloid goods	12,520

GERMAN VIEWS OF THE WAR.

German reports indicate that the rubber factories producing goods for the army have been very busy in some departments, such as sanitary and hospital supplies, bicycle and automobile tires, and the accessories of aviation. This occupation will, however, it is considered, hardly offset the loss of regular business in other departments.

The most important German rubber works are provided with a supply of crude rubber for the next few months. As, however, the military authorities have seized all the available benzine, benzole, etc., there is a dearth of solvents.

A German rubber expert thus expresses his opinion as to the situation:

"The success achieved so far by our arms leads us to hope for the early conclusion of peace. It is in that case not to be doubted that our industry will again be busily occupied, and that it will succeed in making up for the severe losses caused by the war, besides making a progressive development.

Although in a more favorable position than that occupied by fancy goods, toys and industries dependent on fashion, the manufacture of rubber goods was much affected by the outbreak of the war. The lack of skilled workmen, drafted for the war, has been severely felt."

GERMAN EXPORT PROHIBITIONS.

According to German official proclamations of August 29 and 31, explanatory of previous notices, the following articles are subject to prohibition of export and transit commerce,—surgical wadding and gauze, rubber for goods for drainage tubes, bandages, etc., as well as surgical instruments and appliances. Asbestos, graphite, rubber waste and cleaning wool are likewise included in the export prohibition.

BRAZIL AND THE WAR.

By Our Regular Correspondent.

EVENTS move quickly in modern times. Within ten days of the declaration of war the "Revista" of the Amazonas Commercial Association at Manaos published a judicial discussion of the question; while ten days later, the Pará Commercial Association, at a special meeting, considered the effect of the war.

The "Revista" stated that it was as yet impossible to foresee what other nations would be drawn into the conflict, nor to predict its duration and probable effects. It was added that Amazonas would suffer from the disturbance of the world's financial centers and from the derangement of navigation, upon which it relied for the distribution of its products, being dependent on the outside world as to imports and exports to a greater extent than any other Brazilian State.

Among the earlier acts of the association was to oppose the arbitrary rise in the prices of food-stuffs, on which subject assurances were received from retailers and distributors that it was only contemplated to make such advances as were absolutely necessitated by the increased cost of provisions and the fluctuations of exchange.

Under these circumstances the "Revista" urged the taking up of other products instead of limiting the activity of the State to rubber, as had been the case for nearly half a century. Amazonas now had an opportunity of realizing a fair price for its rubber in view of the conditions of the markets of consumption.

As previously announced, the meeting of the Pará Commercial Association was held on August 19 at its new quarters, being composed of *aviadors* and rubber merchants. The chair was occupied by Señhor Rebello, Jr., president of the association, who explained that the object of the meeting was to find ways of meeting the present crisis. Two courses were presented: That of the State government, which proposed through the intervention of a bank to buy the rubber coming on the market and to ship it to America; or the plan of J. Marques that his firm should act as intermediary for all the consignors of the article, shipping it to America on account of the different owners. It would be there sold with one per cent. commission. The firm of J. Marques would advance 80 per cent. of the market value to the owners of the rubber.

After the two proposals had been read to the meeting Señhor Rebello commented on them. He expressed disapproval of that submitted by the Governor of the State and favored that of J. Marques, urging co-operation with a view to its acceptance.

THE "MORATORIUM" LAW.

The two principal clauses of the "Moratorium" law enacted on August 16 by the National Congress provided for the granting of one or more extensions of payments, ranging from 30 to 120 days. Obligations resulting from bills of exchange, promissory notes or protests for their non-payment are not subject to extension.

BRAZILIAN LLOYDS ONLY RESTORING OLD RATES.

The Lloyd Brasiliero has explained that its recent advance in freights only places the line where it was before the reduction of 25 per cent. went into effect. Rates for the lower Amazon and Manaos have not been altered since the war.

FRANCE DECLINING BRAZILIAN RECRUITS.

M. E. de Payan, consul of France at Pará, has notified the Pará press that owing to Brazil's declaration of neutrality it will be impossible to accept the offers received from Brazilian subjects to serve under the French colors.

GERMAN RESIDENTS OF BRAZIL.

The number of Germans residing beyond the limits of their own country has been estimated at over 6 millions. The principal countries containing a German population are: United States, 2,666,990; Russia, 1,800,000; Brazil, 400,000; France, 500,000; Canada, 360,000; England, 100,000.

The "Folha do Norte," of Pará, lately wrote: "We Brazilians owe the Germans perhaps more than we do any other nation. We are, however, not Germans, nor French, nor Russians, but above all Brazilians. Being in many cases descended from Germans, we have to treat our progenitors with respect, while maintaining complete neutrality in this European struggle."

NEUTRALITY OF BRAZIL.

In the early days of August the Brazilian Government issued a decree asserting the neutrality of that country during the present struggle. This attitude has been strictly observed by the press and in official circles. The movements of the reservists in following the calls of their respective countries have been in no way impeded by the federal authorities.

PAOLO CORDELIER GONE TO THE FRENCH ARMY.

M. Paolo Cordelier, local representative for the rubber firm of De Lagotellerie & Co., has left Pará for Europe to join the French colors. A substitute was transferred from Manáos to take his place.

INTERRUPTIONS OF STEAM COMMUNICATION.

At an early date during the hostilities the Lloyd Brasiliero issued a notification that during the war there would only be three departures on the monthly Northern service, the steamers leaving Rio on the 10th, 20th and 30th of each month.

The Northern and Eastern services of the Booth line were suspended until August 6, when orders were received by wire to resume sailings, both for America and Europe.

BRAZILIAN COAL.

In view of the prohibition of English coal exports, attention has been given in Brazil to the geological studies made in the United States and Germany of Brazilian coal, with a view to its utilization in the natural state or as briquets. An analysis shows: Ashes, 35 per cent.; sulphur, 3 to 5 per cent., and moisture, 5 to 11 per cent.; the remainder being composed of carbon and volatile substances.

RUBBER STOCKS IN PARA.

Statistics to July 31 showed the following situation:

June 30 stock ..... *tons*		2,012
July receipts		1,370
		3,382
July shipments, Para to America.....	1,203	....
July shipments, Para to Europe.....	899	....
		2,102
Stock July 31		1,280

This quantity was composed of 256 tons in first hands and 1,024 tons in second hands. The latter quantity included 798 tons in the hands of the Bank of Brazil, and 70 tons each with Messrs. Zarges and J. Marques. The remainder was in the hands of smaller holders.

Para receipts from August 1 to August 20 were 615 tons (566 rubber and 49 caucho). This total shows a comparative decrease from that of the entire month of July of 1,370 tons.

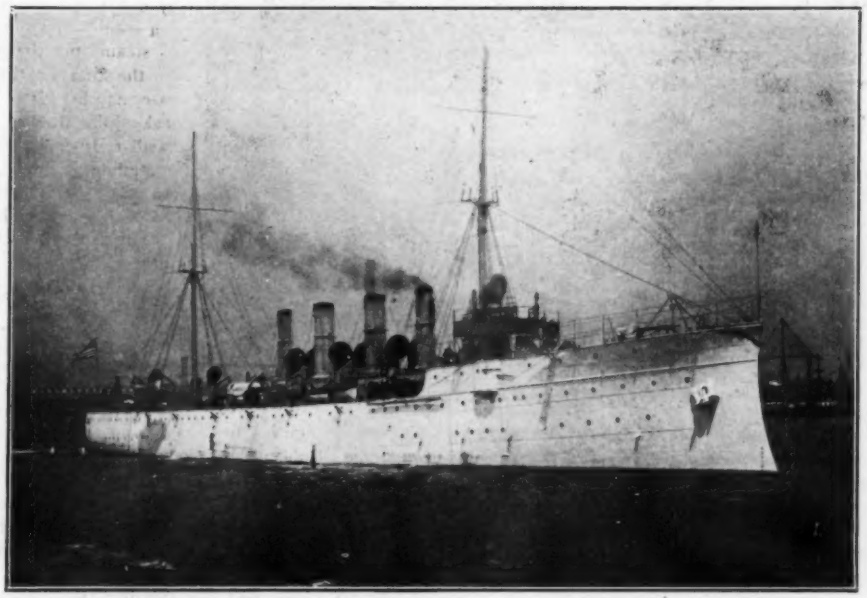
BRAZILIAN VESSELS FOR TRADE INTERCHANGE.

Ambassador Edwin V. Morgan cables from Rio de Janeiro to the Bureau of Foreign and Domestic Commerce at Washington that the Minister of Finance of Brazil is arranging to dispatch to the United States five vessels of the Brazilian Lloyd with consignments of coffee from Santos and Rio de Janeiro, and rubber from Pará, which are to bring back cargoes of prime necessities.

The accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

Rubber Aboard the Fighting Fleet.

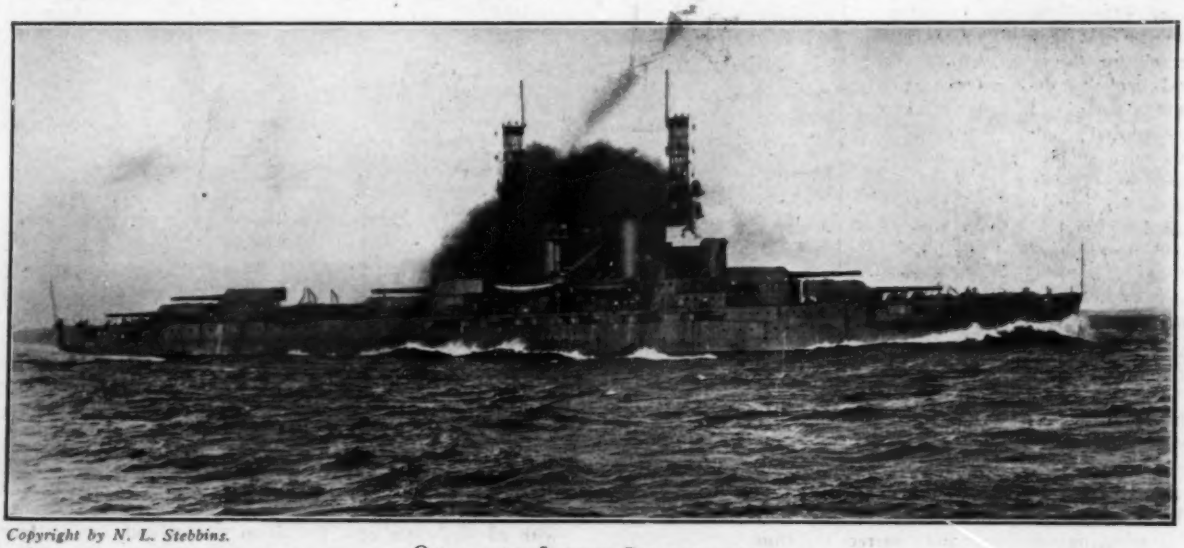
THE rubber markets are going to be sorely taxed before long to meet the needs of the battling navies of the world and to make up the losses incident to warfare afloat. The public at large does not know it, but this material of nature's providing plays a large part in making the man-o'-war the efficient fighting machine it is today. Indeed, if one were to reduce its varied uses to a question of pounds, every first-class dreadnought would show its indebtedness to the measure of many tons.



One of Our Scout Cruisers Which Have Led the World in Wide Range "Wireless" on Shipboard.

The more formidable india rubber serves to make the battle craft the further that vessel goes toward maintaining peace or, when that becomes impossible, the better can she safeguard the home country and its industries. England with her fleet has made it reasonably safe for her merchant craft to maintain their trade routes with but little fear of hostile interference, and it is doubtful if her dreadnoughts and her battle cruisers could do this without the helpful service of rubber in manifold directions.

The modern man-o'-war is a gigantic steel honeycomb—the idea of extensive subdivisioning being to restrict the effects of injuries to narrow areas or moderate spaces. There is an outer bottom and an inner bottom, and the interval between is divided into small compartments and each made watertight and yet susceptible of inspection. This inspection is necessary in order that the steel surfaces can be watched lest rust eat away the protecting paint and corrode the plates to dangerous thinness. Hundreds of manholes lead into these subdivisions, and to each there is a watertight plate or cover, made watertight by employing gaskets or collars of the best of rubber packing. Again, on a larger scale, the ship is partitioned off by high and wide bulkheads of steel, and in order to facilitate inter-communication between these active centers—for in these spaces are placed engines and boilers and auxiliaries in different compartments of their own—there are sliding or swinging doors, depending upon the positions, which, when closed, should be absolutely watertight. They would not be watertight, in fact could not be made watertight effectively



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One of the Largest Dreadnoughts.

but for the rubber used. In these two directions alone, not to mention others, the safety of a ship in time of accident mainly depends, for a leaky manhole or an insecure door might easily lead to grave consequences if not to the loss of the craft itself.

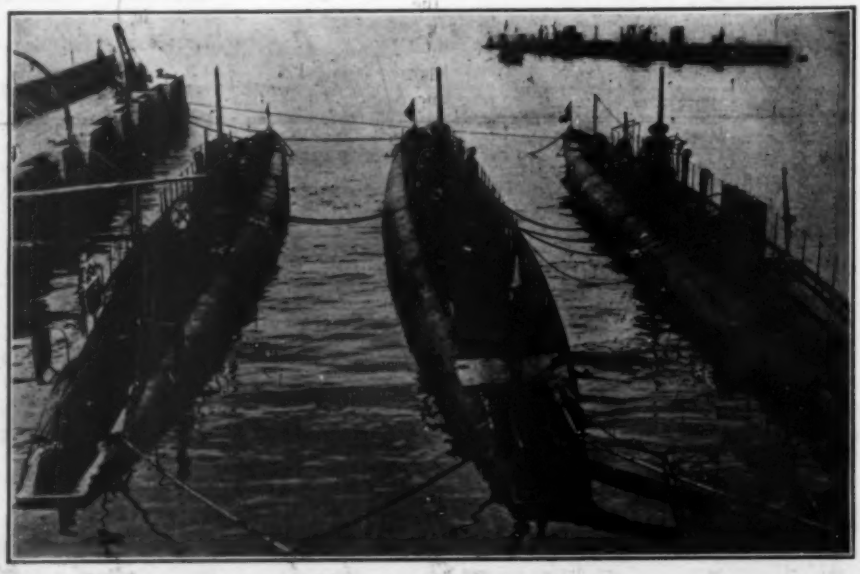
But a ship that can keep the sea in all kinds of weather, either

How the United States Navy Lays Naval Defense Mines.

guarding the paths of commerce or pursuing the foe, must be something more than merely secure below decks. It is quite impossible for her to drive along into heavy seas and to have her decks smothered with the great tumbling masses of water unless her hatches and her sky-lights as well as portholes be proof against the sea's invasion. Here, once more, rubber packing and rubber seatings meet the emergency and make it possible to close these openings perfectly. But there must be communication at many points beneath the waterline between the sea and the interior of a man-o'-war. Some of these openings are for the purpose of flooding compartments in case of fire, others are passages by which the sea water can be drawn into the ship for a variety of services. In every case, however, a suitable valve stands sentinel between the breach and the inner vitals of the craft, and that these valves may be tight when closed, rubber packing is employed. Indeed, one might go on interminably and enumerate these necessary but not spectacular services of india rubber, but enough has been said to show how the fundamental fitness of the ship as a structure hinges in certain essential particulars upon the part played by this valuable material in the humble form of mere packing.

When it comes to the activities of the craft, such, for instance, as the motive machinery, then rubber packing of a different sort is demanded. The modern dreadnought carries steam at a higher pressure than that generated in the boiler of a racing locomotive, and that scorching energy has to be held within bounds at every joint, stuffing-box, etc. A premium is paid to the engineering force in our men-o'-war which keeps its consumption of coal and water and oil below a certain standard or maximum. Oil is sent into the machinery for lubrication under pressure and no more and no less than the amount required must be used to meet this gauge of efficiency. Piston rods and valve stems must not exude an excess, and here is where rubber packing saves the day. The coal and water problem is a still nicer one. Salt water is not used in marine boilers—the ship starts upon her voyage with her boilers charged with fresh water and with a reserve supply in suitable tanks or in the double bottom spaces. When more is needed, it is obtained by distilling the sea water. Distilling sea water calls for heat in the form of steam, and the steam is produced by the coal or the oil fuel, as the case may be. It is surprising what a leaky joint in a hot water pipe or a small escapement in a steam feed or a stuffing box will represent in the way of waste in the course of twenty-four hours. Therefore, only the best of rubber packing will answer.

Of course, many of the decks not exposed to the weather are covered with rubber tiling and rubber mats at the foot of ladders and the approaches to heavy steel doors are a necessity; likewise so are the treads on gangways covered to prevent slipping as the fighting men hasten up and down upon their various missions. Rubber stops keep doors from banging, and similar buffers check the blows of the innumerable ponderous masses that swing and move in their different services on shipboard. Naturally, there are miles of rubber hose for cleaning decks and for battling with fire, and Jacky must have his rubber boots as well as his rubber clothes in order that he can stand watch when the storm blows and the stinging spray sweeps the ship from stem to stern. Down in the sick bay and the dispensary the surgeon has his rubber bandages, and vulcanized rubber utensils of many sorts, not to mention rubber tubing and the insulations



A Flotilla of Italian Submarines.

of his X-ray equipment. Indeed, rubber is just as much present there as it is in the operating room of a large hospital, for the ship's surgeons have a crew of more than a thousand to minister to in the biggest of up-to-date dreadnoughts. There are scores upon scores of lesser directions in which rubber is alone ade-

quate on a fighting ship, but these cannot all be detailed here.

In the strictly fighting end of the naval vessel, rubber meets the needs as nothing else will, and the wonderful precision of the modern naval artillery is very largely due to the aid rendered by this material. The gun pointer, or rather the gun pointers, for there are two of them for each big gun, are the men that

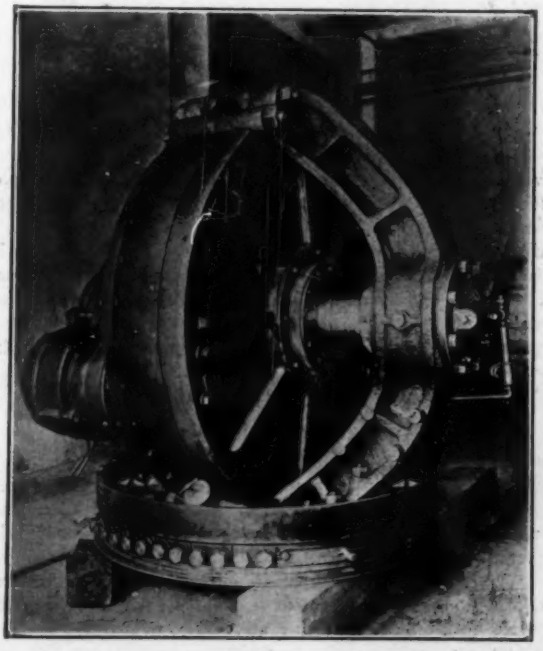
Making the Rubber Capped "Eye" for the Gun Pointer.

keep the muzzles of the weapons pointing steadily at the target anywhere from 10,000 to 16,000 yards away. No matter how their ship may roll, it is their duty to swing the rifle to right or left or up and down—one man controlling the horizontal movement while the other controls the vertical—holding it always straight at the object far away. To do this, these pointers must hold their eyes pressed against a telescopic sight, holding them there even when the gun is fired and the sight jarred by the shock of the explosion. But for the cushion of soft rubber the men's brows would be cut to the bone and their expert usefulness destroyed in a few moments. Again, the small, rapid-fire guns, those spit-fires that are designed to destroy submarines and to keep other torpedo craft at bay, have a habit of jarring their pointers in recoil something after the fashion of a kicking mule. No human shoulder could stand this pounding but for the intervening pad or tubular buffer of rubber provided.

The latest mechanical device designed to help the man behind the gun is a telescope that "floats" horizontally, no matter how the ship may pitch and roll, because it is mounted upon a small stabilizing gyroscope. This mechanism is placed in the so-called "spotter tops" of the military masts, where crouch the men who watch the splash of the range-finding shots and telephone below how much "over" or "short" the gunners have estimated the distance. The spotters trace the fall of the projectiles through these telescopes, even though the mast tops are sweeping through wide arcs like agitated whips. The stabilizing gyroscopes that make this service possible are driven by wee electric motors, and only the perfect insulation of rubber makes their performance possible. This brings us to other uses of the gyroscope on shipboard and, incidentally, to the employment of rubber insulation. The gyroscopic compass is rapidly displacing the old magnetic compass aboard men-o'-war, and the gyroscope is now employed to record at various places in a ship diagrammatically the way the craft is turning in relation to a fixed point which cannot be seen but toward which the men of the torpedo tubes must set their weapons ready for launching. But the most startling use of the gyro is for stabilizing a vessel so that she will roll but little even when the sea is very rough. One of our illustrations shows one of two gyros fitted to the United States torpedo boat "Worden," and the manner in which they performed has blazed the way for their use on battleships. Apart from insulating the electrical connections, rubber also serves to make air-tight the casings in which the gyros are spun in a partial vacuum.

We have heard much about the submarine mine and the torpedo of late, but it is highly probable that many do not know the ways in which rubber makes these weapons of destruction the sinister instruments they are. In the automobile torpedo rubber packing is extensively used and necessary, but it is not of that we want most to speak. The torpedo would not fulfil its mission properly if it could not run at a uniform depth below the surface of the sea—that depth being far enough down to get below the protecting belt of armor and to hit a ship where she is least able to withstand such a blow. The depth-regulating device consists fundamentally of a diaphragm of soft rubber directly exposed to the pressure of the sea water on the outside and to the thrust of a spring on the inside, all the while keeping the water from getting into the body of the torpedo and thus altering its nicely adjusted buoyancy. The pulsing of this rubber diaphragm is the means by which the rudders controlling submergence are operated. In the submarine mine, the prime service of rubber is one of insulation, but there are forms of these weapons that are likewise held at a predetermined depth through the action of a rubber diaphragm akin to that in the torpedo except that the actual buoyancy of the mine is juggled. Of course, we are speaking of naval mines and not military mines which are operated from a shore station.

As must be recognized, every fighting ship today has a wide and varied electrical installation, and none of this service would



One of the Big Stabilizing and Rocking Gyros. The Spinning Wheel is Inside of the Cylindrical Casing. Normally It Rotates in a Fore-and-Aft Plane, But When Turned from Side to Side It Exerts a Push Like the Shifting of Tons of Weight Upon the Deck of a Vessel.

be possible but for rubber in one form or another, and the United States Government, as do most other maritime nations, imposes a very high standard for all of these preparations. The submarine is entirely electrical in its propulsion when submerged, and only the very best of insulation is permissible, for a chance spark through any defect would be pretty certain to invite disaster if not destruction. So, too, the hull must be kept perfectly watertight and all hatches must be so fashioned that their covers can be screwed tight against seatings of the best of soft rubber packing. A leak of sea water might be quite as dangerous as a short circuit, because if that water found its way into the storage batteries it would lead to the generation of that insidiously suffocating chlorine gas which has already asphyxiated more than one submarine crew.

No up-to-date ship of war is complete without her wireless outfit, and the readers of The India Rubber World know already

Diving Outfit.

how much rubber helps to make this wizardry of the air possible; and just as messages go and come through the atmospheric ocean so, too, knowledge of what is happening in the depths is sometimes quite as necessary to the warship. If the craft be injured below water, if there be some doubt as to the structural condition of her bottom, or if an anchor be fouled or lost, then a man must be sent overboard for inspection or for search. Here is where the naval diver fulfils his mission, and here, likewise, is where rubber makes his important work possible.

WHERE DID THEY COME FROM?

To The Editor of The India Rubber World, Dear Sir:

A New York newspaper man passing an establishment which combined the functions of a retail hardware store and a junk shop saw a window full of queer looking objects and carrying that illuminating placard: "Do you know what they are? We don't, but we have a lot of them and are going to sell them at a quarter each if we can find anybody fool enough to buy them." The newspaper man did not fit the description of the desired customer, but the mystery weighed upon him until good fortune brought him to the fount of knowledge which overflows in the pages of The India Rubber World. He saw a picture and from that moment he knew more than the junkman. It was an india rubber tapping knife.

"HENDERSON RUBBER."

FOR years the object of a certain group of chemists has been the manufacture of a synthetic rubber. The methods of approaching this subject vary greatly, but the ultimate object has always been a chemical compound having all the characteristics and the same chemical composition as true rubber. What is known as "Henderson Rubber" is an entirely new product; it is not a synthetic rubber nor is it a rubber substitute.

Its basis is raw hide scrap. This as it comes from the dealer is very hard and tough and difficult to cut or work with ordinary tools. The scrap is first treated to remove all impurities, and is then given a further chemical treatment which partly breaks down the hide. This reaction is accompanied by a change of the relation of the atoms in the molecule and what appears to be a colloidal arrangement is set up. The material is then in a very unstable condition and must undergo further treatment which results in a product of great stability. The treatment not only preserves and stabilizes the substance but also has an effect in the finished product on its affinity for true rubber. The product is then cleaned, masticated and sheeted out and is ready for the market.

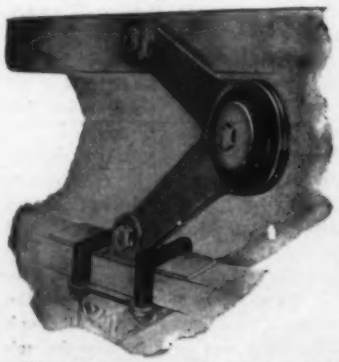
It has the appearance and many of the characteristics of light plantation crêpe. It is tough, very nearly as elastic, and may be worked in the same way. Used in rubber mixings it is said to increase tensile strength and resiliency. It is used in the same manner as rubber, except that a certain percentage of rubber should be present in soft goods if the product is to be vulcanized.

Henderson Rubber, it is claimed, resists oxidation and keeps down deterioration, thereby increasing the life of the article. When used with reclaimed rubbers of all grades it is said to improve their quality very materially and also to have the faculty of taking up a large percentage of minerals.

Its uses, so the manufacturers assert, are as varied as those of rubber and it may be used to advantage wherever rubber is used, either in soft or hard goods. It is on the market and is being used in molded goods, frictions and surfaces for belting, auto. casings and tubes, hard rubber and ebonite goods.

RUBBER DISC SHOCK ABSORBER.

The majority of the automobile shock absorbers that have been placed on the market in the past operate either by means of steel spring resistance or by the friction of steel discs. However, here is a newer type of shock preventer which takes up the shock of the road by virtue of the graduated resistance of a series of rubber discs. The illustration shows one of these devices set above the spring between the axle and the frame of the car, to control the action of the spring as it moves up and down. The device comprises a series of inclined planes of high carbon steel working against discs of brass on the principle of the wedge. As these wedge-like discs operate, they expand and contract other discs of rubber. This rubber cushion rapidly increases in resistance the farther it is compressed, so that a heavy shock meets with a corresponding resistance while a light shock encounters small resistance.



The Shock Absorber with the Rubber Discs.

What the Rubber Chemists Are Doing.

SOME AMERICAN WORK ON SYNTHETIC RUBBER.

IN the "Journal of the American Chemical Society" (April, 1914), L. P. Kyriatides describes some highly technical work which is of interest to the rubber industry, as it indicates a possible method of making synthetic rubber, and were it not for the high cost of the raw materials used and the complicated and costly process of manufacture it might be of commercial value.

The first article is entitled "Observations on some Barbier Grignard Reactions." The reaction relates to the action of ethyl-magnesium bromide on various substances and in this case chlor-acetone was the substance acted upon. This reaction produces oxides. The author has improved the original method by substituting ethyl-chloride for the ethyl-bromide which was used in the original Barbier Grignard process, being acted upon by metallic magnesium in the cold in ethereal solution. The author claims that by substituting the ethyl-chloride excellent results were obtained.

The product of the reaction was methyl-butylene-oxide.

In the following article, entitled "New Process for the Preparation of Unsaturated Hydrocarbons with Conjugated Double Bonds," it is revealed that these are attempts to make synthetic rubber, as the "conjugated double bonds" are the necessary characteristic of all the proposed raw materials.

The sub-head of this latter article is "Pyrogenetic Decomposition of Oxides." A number of experiments was tried, but the successful one was the dehydration of methyl-butylene oxide made by the previous process by distillation through kaolin heated to 450. The reaction was carried on in a vacuum with an absolute pressure of less than 1 mm. The hydrocarbon (isoprene) showed a constant B. P. of 35-36. This liquid was treated with a coil of sodium wire and thus polymerized according to Harries' directions. A tough product was obtained which vulcanized to a product resembling leather more than rubber.

This seems to be about the only work done on synthetic rubber in America. At least it is the only work the results of which have been given to the public and, taken in connection with Patent No. 1,106,290 of August 4, 1914, and previous patents No. 1,094,317, 1,094,223, 1,093,922 and 1,093,923, which were granted to L. P. Kyriatides and R. B. Earle, and assigned in each case to the Hood Rubber Co., it shows at least some attempts by Americans to make some progress in a line which has been heretofore monopolized by Europe.

PROPERTIES OF RUBBER SOLUTIONS.

W. A. Caspari has been doing extensive experimental work on the osmotic properties and physical constants of caoutchouc solutions. This is published at length in the "Journal of Chemical Society" (London) for August, 1914, pp. 2141-2150.

He states that while the osmotic pressures exerted against a semi-permeable diaphragm by various colloids in aqueous solution have been frequently determined, their real significance is a matter of some doubt, owing particularly to the usual presence of some small amount of foreign electrolytes. But when the solvent is non-ionizable matters are simplified and extremely viscid solutions like caoutchouc may show peculiarities of their own.

Osmotic pressure measurements are usually for the purpose of determining the molecular weight, but are more reliable when the solutions approach the character of crystalloids. The cryoscopic and ebulliscopic methods usually fail to measure osmotic quantities of colloids, but by direct measurement of the pressure inside a semi-permeable septum greater delicacy is obtained.

The following figures were obtained with fresh caoutchouc in benzine:

Percentage in Solution	Pressure M. M.	Atmospheres	Viscosity
5.26	45 (Hg.)	.059	....
3.59	360	.030	....
2.95	251	.021	....
2.10	137	.011	3,196″
1.48	77	.006	989″
1.01	42	.003	374″

Here it will be seen the osmotic rise increases faster than the concentration. The viscosity was determined by the flow through the capillary tube of the Ostwald viscosimeter. On deviscifying the caoutchouc by boiling the solution for 80 hours the following figures were obtained:

Percentage in Solution	Pressure M. M.	Atmospheres	Viscosity
9.95	37 (Hg.)	.048	287″
6.89	330	.028	150″
4.11	165	.014	68″
2.06	71	.006	35″

In both cases the osmotic rise seems to depend on physical condition rather than the concentration. To prove this viscous solutions were put on one side, the osmometers and the deviscified solutions of same strength on the other. Also, the depression of freezing point in benzine solution is so small as to be of little value.

In experimenting the author used benzol and gasoline (boiling point 80°-120°) for the permeable diaphragm. Cylindrical cells of white porous earthenware were found suitable; for their solution the cell pores were blocked with cold vulcanized caoutchouc. This was done by soaking them in 10 per cent. solution of deviscified caoutchouc, placing them under a vacuum to remove air. Then after a few hours' more soaking they were immersed in sulphur chloride to cure.

The osmometer was of glass, consisting of a widened part with stopper like the top of a bottle cemented into the earthenware cell, and a manometer tube came out the side of the glass top. This whole arrangement was lowered into a wide cylinder containing the outer solvent. Deresinified plantation rubber was used containing about 3 per cent. nitrogenous and mineral matter.

The more viscous solutions invariably showed an osmotic rise against the less viscous. Similar experiments were made with gutta percha. Considerable speculation is indulged in in accounting for the results obtained, but it appears that the final conclusions were that a convergence of the molecular weight values of caoutchouc towards 100,000 is indicated and gutta percha is shown as 40,000, which is considerably smaller.

SWELLING OF VULCANIZED CAOUTCHOUC.

F. Kirchof (Kolloidchem Beih., 1914, 6, pp. 1-22. Abs. in the Jour. Chem. Soc., August, 1914, page 633) has examined the swelling of vulcanized rubber by measuring the increase in weight of thin discs of Pará after immersion in benzine, carbon tetrachloride, carbon bi-sulphide and benzine (naphtha of .74 sp. gr.).

The results show that the maximum swelling of caoutchouc decreases as the vulcanization increases. The maximum swelling was attained in 24 hours. The specific influence of each liquid runs parallel with the solvent power. The swelling velocity increases slowly with the rise of temperature. The relation between the extensibility and the vulcanization coefficient is similar to that existing between the swelling capacity and the degree of vulcanization.

THE VISCOSITY OF RUBBER SOLUTIONS.

D. Spence and G. D. Kratz (Kolloid Zeit.), 1914, p. 262, have shown that the viscosity of a rubber solution may be lowered to almost that of the solvent, and then the insoluble nitrogenous portion may be easily separated. Sunlight and heat assist in reducing viscosity. One hundred grains of washed and dried rubber were treated with 1S. of benzine containing 0.3 to 0.5 per cent. of tri-chloro-acetic acid and warmed. After 48 hours with occasional shaking it was settled, decanted, washed with the solvent, then with pure benzine, then dried and extracted with benzol, washed with alcohol and dried.

In four samples plantation rubber gave nitrogen as follows: 9.83 per cent., 10.90 per cent., 11.58 per cent. and 12.08 per cent. It is soluble in 1 per cent. Na.O.H. and precipitates with dilute acid. It agrees in nitrogen contents and reactions with the glucoproteins.

Hard cure Pará gave 7.75 per cent., 9.6 per cent. and 10.3 per cent. nitrogen. The insoluble constituent of balata contained 5 per cent. N. and specimens of proteins from *Funtumia elastica* showed N. 9.5 per cent. and 11.5 per cent. These results establish the fact that the nitrogenous constituent of rubber is a complex of protein and carbo-hydrate—probably a gluco-protein. The proper factor for nitrogen is probably 10 instead of the usual 6.25.

Clayton Beadle and H. P. Stevens seem to have carried out an extensive series of tests on viscosity of Pará rubber and at the same time tested vulcanized samples of the same rubbers. They have contributed a rather voluminous article in the "Chemical World" (London) of August, 1914, but a large part of it is devoted to comments on previous work of themselves and other authors, and no detailed figures are given to show just what their results were.

THE UNION OF SULPHUR WITH RUBBER.

Mr. F. Ahrens, in "Gummi-Zeitung," No. 28, p. 490, makes a contribution to the vulcanization of rubber in which he points out that rubber does not add sulphur in the ordinary conception as charcoal does in the case of dyes, gases, etc. He thinks that blooming shows the presence of a "solution product" and a "reaction product." The relation of the two changes continually until equilibrium is reached, the chemically combined sulphur increasing and the free or dissolved sulphur diminishing in amount. He claims the phenomenon of reversed action is frequently noticed in vulcanized goods. As an example he cites the analysis made of two identical samples, one analyzed directly after making and the other analyzed after aging several months. The rubber used was low grade. In the fresh sample the total sulphur was 15.80 per cent., acetone soluble sulphur 7 per cent. and combined sulphur 5.9. In the old sample the total sulphur was 13.60 per cent., the acetone soluble sulphur 9 per cent. and the combined sulphur 2.83 per cent. This seems a remarkable change in composition and one not often observed. The author thinks that the old sample has eliminated the sulphur as H_2S. The decrease in combined S. tends to the conclusion that this is less firmly bound in the old sample. Pará is said to show much less variation, and it is concluded that the particular nature of the Colloid requires the S. to be present in something more than the mechanically dissolved state.

The Industrial Chemical Co. with executive offices at 200 Fifth avenue, has recently erected a new plant with a capacity double that of the old one. This company makes "Alba Whiting" a specially prepared rubber white, so well adapted for rubber compounding use that this department of the business has increased 100 per cent. within the past two years. It is claimed to be economical both in cost and continuous use. This company also makes an excellent grade of rubber black.

SUBSTITUTE FOR RUBBER AND GUTTA PERCHA.

THE increasing use of both india rubber and gutta percha has turned the attention of industrial chemists to the production of substitutes therefor; and among these is a series which has been brought out by Dr. Zühl and Herr Zimmermann, of Berlin. The intention is, of course, to produce a substitute for the two flexible vegetable substances, which shall have the same chemical and physical properties and be equally valuable for insulating against electricity. It is based on the fact that Chinese wood oil, which, as is well known, when heated at high temperatures is transformed into a mass resembling caoutchouc, can also be similarly changed when treated with chloride of sulphur. If the wood oil in question is mixed with resin or resinous substances, as for instance pitch, asphalt, or the like, and then subjected to the action of chloride of sulphur, there will be produced a substance which may be employed in the same manner as india rubber or gutta percha. It is desirable to heat the mass thus obtained to about 160 degrees C., after mixing it with a certain percentage of sulphur.

If it be desired to make artificial gutta percha, pitch, asphalt or similar substance—better still, paraffin wax—should be added to the resin before these are added to the wood oil and heated. Or the oil may also be treated with the sulphur chloride, and then the pitch, resin, etc., added. A less convenient method, but which also leads to good results, is said to consist in heating the mixture of resin, pitch or the like, with the wood oil to 200 degrees or 300 degrees C. for a long time, and then vulcanizing.

The proportions given in the German patent papers (No. 119,635) are as follows:

For making gutta percha: Two kilograms of paraffin wax are melted with 6 of pitch, 2½ of wood oil added, and the mass stirred until thoroughly homogeneous. Then 1.1 kilograms of sulphur chloride are added slowly and well stirred; next, about 100 grams of fine pulverized sulphur, and the mass is then heated about one hour to 160 degrees C.

For making india rubber, 2 kilograms of pitch are mixed with 1 kilogram of wood oil and heated under pressure about 8 hours to 280 degrees C. The product is vulcanized with 250 grams of sulphur chloride.

A subsequent process, tending to increase the tensile strength of the products, consists in dissolving 100 grams of crude rubber in 300 of melted naphthalin at the lowest practicable temperature, then adding to the solution 400 grams of Chinese wood oil and 700 of some resin or resinous substance as pitch, asphalt, or the like. The naphthalin must then be driven off by steam heat, which effects the vulcanization of the mass.

Or one kilogram of the material produced by following the directions in the first patent mentioned is dissolved in 3 kilograms of naphthalin, and then 100 grams of caoutchouc dissolved in 300 of naphthalin are added. The latter being driven off by distilling with steam heat, the mass is ready for use.

A PARACHUTE FOR THE AEROPLANE.

Obviously the drawback to all aeroplanes is the great possibility of coming too suddenly to earth. A number of parachutes have been invented for the personal use of the airman, the purpose being that if anything happens to the aeroplane he can cut loose from it, letting it take its own course, while he, buoyed by his parachute, drifts down quietly and safely to earth. But a more comprehensive parachute has recently been devised which aims to keep up the entire machine. It is folded away in a little box over the flyer's head and has ropes attached to all corners of the frame. If anything happens to the machine the pilot releases the parachute, which opens up above and brings pilot and aeroplane both gently to earth. At least this is the theory.

Some Neglected Near-by Markets—IV.

SALVADOR.

THE average American who is able to remember the names of all the Central American Republics feels a distinct pride in his accomplishment and naively refers to the excellence of the memory which has preserved this knowledge since his grammar-school days. They are, in his estimation, spots on the map, representing insignificant and ill-defined regions outside of all civilized travel, steaming with tropic heat, inhabited mostly by savages, mosquitoes and boa-constrictors; the chief industry, revolutions, and the chief product, miasmatic fevers. This ignorance is not far from the level of that found in a few remote corners of New England, where they believe that all the people west of the Mississippi are a rude, ungodly lot who carry revolvers and express their emotions in broadsides of profanity.

But the man who is proudly able to reel off the names of the five republics—or six, if we count Panama—will decline to locate them unless he has a map at hand. When he looks at the map he fixes their relative importance or unimportance by the space which they occupy and, accordingly, gives Salvador a very low place. It is true that, on a map of North America, Salvador does not make a very big showing, but there are considerations other than geographical extent. The county having the least area of all the counties in the United States is New York County, New York, which is not a negligible quantity in the affairs of the nation. Salvador has a population as great as that of the State of Kansas, though its area is less than that of any American State except Delaware, Connecticut and Rhode Island. This is a point well worth the exporter's attention. A sparsely settled territory may have a great future, but a thickly settled country has an indubitable present. And there is no need to argue the elementary proposition that in a densely settled community the problems of transportation and distribution are reduced to a minimum. Salvador has a population of about 250 to the square mile, a density nearly ten times as great as that of the United States. This is made more impressive when we reflect that a like density would give our average American townships of thirty-six square miles a population of no less than nine thousand. The population of Salvador, moreover, is industrious, thrifty and peaceable. About half of it is of Indian blood, while the remainder is chiefly of mixed European and Indian extraction. A minority of pure whites exists, forming a sort of natural aristocracy of wealth and education, but separated by no hard and fast lines from the cultured element among those of mixed race. The negro element is small, chiefly foreign and confined to the seacoast towns.

Are the Indians civilized? They are, and have been since long before the coming of the white man. They belong to the Tlasaltecan branch of the Aztec family, who submitted to their Spanish conquerors exactly as our own Saxon ancestors submitted to the Normans; and the reproach is no greater in one case than in the other. Peaceable, unarmed, unorganized farmers, they were no match for trained soldiers equipped with the best weapons the times afforded and urged on by greed of gold and power. But the Indian, as did the Saxon, has stayed and multiplied and it is no longer a reproach to belong to the conquered race.

If we imagine the population of Kansas settled on 10 of the 105 counties of that State, we would see that it was well worthy the attention of our manufacturers. And when we realize that Salvador is little further from New York than Kansas itself, it is really time for our business men to sit up and take notice. Only a thrifty and industrious people can exist in such numbers on so small a territory, and such a people are always good customers. The farms of Salvador are really a series of gardens, interspersed with villages and towns. The soil in many districts is fourteen feet deep and everywhere of amazing fertility. In fact, this very fertility is the chief difficulty with which the tiller of the soil has to contend. The weeds spring up behind him in the row he hoes. A few weeks of fallow turns his garden into a miniature jungle. But, as may be imagined, no slothful and slipshod methods are followed in a country which supports 250 to the square mile—more than one person to every three acres—and exports millions of dollars' worth of agricultural products. Within the limits of this little republic is grown every garden product of the tropic and temperate zones. The hot coastal belt is but little more than ten miles wide, the remainder of the country being salubrious uplands, with forest-covered mountains intersected with fertile and cultivated valleys.

The far-famed Balsam of Peru is a product of Salvador and nowhere else. Its misnomer dates back to the time when Spanish America was either "Mexico" or "Peru" and

Courtesy of Pan American Union.

A Balsam Tree in a Forest in Salvador.

everything coming by way of Panama was considered Peruvian. It is the product of a leguminous tree known as *Myrospermum pereirae,* but which the botanists of the republic very reasonably ask to have called *Myrospermum salvadorense.* It would seem, however, that the generic synonym, *Myroxilon,* is preferable, in view of the manner in which the characteristic product is obtained. It is a lofty tree, frequently reaching a hundred feet in height, with the characteristic flowers and

leaves of its tribe and a yellow, one-seeded pod. This balsam is secured by incision of the bark in much the manner that rubber is obtained. It will flow at any time, but the best results are had in the dry season, which coincides with the inclination of the "balsameros," who find occupation in other industries when the rains are coming down. This balsam is a fragrant oleo-resin, having medicinal virtues recognized today as well as centuries ago. The tree begins to yield a product of value when about twenty-five years old and with proper care will continue to yield for fifty to seventy years. The wood is valuable for furniture, being similar in color and quality to rosewood, which belongs to the same family.

The great staple of Salvador is coffee, of which, in round figures, eight million dollars' worth annually is produced for export. This is about one-twenty-fifth as much as the coffee exports of mighty Brazil, with a territory nearly five hundred times as great. In the production of gold Salvador, area for area, exceeds any other country on the face of the earth. Its commerce, with ten million dollars of exports and more than six millions of imports, has increased about 50 per cent. within four years past. Something more than a third of its imports come from the United States, chiefly cheap cotton cloths, flour, machinery and the coarser forms of hardware—all staples which sell themselves and give only moderate profit, leaving the cream of the trade and profits to European merchants, who have twice as far to carry their goods, which often cost more to produce than do the American.

In this busy, energetic little state American rubber manufacturers can find a ready market for several lines of goods. Belting and other lines of mechanical goods are called for in constantly increasing quantities, as the native manufacturing industries are passing rapidly from the household to the factory stage; every village is planning for electric light and power; the mines of gold, silver and other minerals are steadily increasing their output, and scientific equipment and the plantations are using machinery more and more with each passing year. When we remember that the farms of Salvador are really gardens and that the only weather contingency which the gardener dreads is that of drought, it ought to be the business and pleasure of one or several American manufacturers to teach the Salvadoreans the uses and virtues of garden hose. The streams are there in abundance and the dams and reservoirs will not be long lacking when the cultivators of the soil realize that they can remove the last chance of failure in producing their crops. The numerous cities and villages, with their large proportion of wealthy and cultured people, offer a market for druggists' sundries which will compare favorably with many portions of the United States. Rubber shoes, of course, are not greatly in demand in this or any other hot country, but there are still a few everywhere who will endure the heat for a time in order to go dry-shod during the season of tropic rains. Road building on a scientific basis has made a beginning and the density of population makes feasible what could hardly be undertaken in a more sparsely settled country. Automobile roads now connect some of the principal towns away from the railroad and in a very few years it will be possible to motor from one end of the republic to the other. And the rich creole who breaks the speed laws will be followed by a Mestizo policeman on a motorcycle, and Indians on bicycles will scorch after them to see the fun. Somebody is going to furnish the tires, and why not the American?

The salesman who goes after this trade must speak the Spanish language, though a foreign accent will do him no harm if he is tactful and polite, regretful that he cannot speak the pure Castilian of his customer and profoundly grateful for the courtesy which overlooks his failing. And he must not be too scornful of "manana." If the customer says "manana," manana let it be. Better an order tomorrow, or even the next day, than no order to the end of time. There are two sides to the question of sauntering or galloping through life and, as Sancho Panza would put it, a bird in the hand is worth two in the bush, and when you are in Rome you should do as the Romans do. Trade is conducted on the basis of the buyer's wants, in matter, in manner and in time; and it is distinctly preferable that the merchant should say "Manana" than "Adios, Señor!"

Postal and telegraph facilities are excellent and the telephone service is very complete, it being possible to telephone from one end of the country to the other. Banking facilities are all that could be desired. Hotels are good and prices very moderate.

The best way to reach Salvador is by way of Panama, passing thence by boat to the port of Acajutla, whence a railway of sixty-five miles' length leads to the capital, San Salvador. Here, at the traveler's leisure, he can plan his trip through this land of picturesque scenery and lovely gardens. If he has understanding, sympathy and philosophy he will vastly enjoy his experience; and if he has tact and business sense he will add to the worldly prosperity of himself and his employer.

The principal ports other than Acajutla are La Libertad and El Triunfo, on the Pacific Coast, and La Union, at the head of the bay at the eastern end of the republic. Acajutla, though itself an insignificant village, being the terminus of the railway system leading to most of the important towns, handles nearly half of Salvador's foreign commerce. San Salvador, the capital, has a population of 60,000, with pleasant suburbs in addition. Santa Ana, twenty-five miles away by rail, has 53,000; other places of importance are San Miguel, 25,000; San Vicente, 20,000; Santa Tecla, 18,000; Sonsonate, 17,000; Chanameca, 12,000, and Coatapeque, 12,000.

In 1912 the aggregate imports of Salvador equaled $6,774,859, of which about one-third came from the United States. The total included the following amounts from three principal sources: United States, $2,627,700.22; United Kingdom, $1,904,546.16; and Germany, $664,674.45.

Rubber goods from this country formed the relatively small proportions of $30,413 in 1912 and $27,312 in 1913. Belting, packing and hose represented in the earlier year $8,214 and in the later period $13,169. Rubber goods not specially enumerated were respectively $21,643 and $12,422. Smaller amounts of rubber boots and tires made up the amount.

Our total exports to Salvador for the two years 1912 and 1913 amounted respectively to $2,421,284 and $2,389,971.

The rates on rubber goods via the Panama line from the loading piers New York to La Libertad and Acajutla are (including mackintoshes and raincoats) 53 cents per cubic foot, or 95 cents per 100 pounds, at ship's option of weight or measurement.

The total exports of Salvador in 1912 were $8,936,795, of which the United States took about one-sixth, or $1,519,154. Under this head were included 25,493 pounds of rubber in 1912, valued at $19,684; the amount for 1913 being 12,753 pounds, value $7,433.

On July 18, 1914, the government of Salvador fixed the export duty on rubber at 0.02 peso silver per kilo ($0.38 per 100 lbs.); this being the rate for the year 1915 or until further notice. The freight rate from Acajutla and La Libertad on crude rubber to New York is $1.25 per 100 pounds, via the Panama Railroad Co.'s steamers.

The Consul General of the United States is Henry F. Tennant, at the capital, San Salvador. The Consul General of Salvador in the United States is Senor Encarnacion Mejia, who is stationed at San Francisco, which, hitherto, has had most of the trade of our country with Salvador. The Consul at New York is Señor José Alfaro Morán, 42 Broadway; and at New Orleans, Señor Antonio Peralta.

The Editor's Book Table.

THE VALUATION OF RUBBER ESTATES. BY F. C. PECK, Director of the Mergui Rubber Estates, Limited, 1914. Singapore: Kelley & Walsh, Limited. London: Effingham Wilson. [Cloth, 8vo, 181 pp. 12*s.* net.]

THE growth of the rubber plantation industry and of the ever-increasing inclusiveness of books on rubber topics are both shown by the title of this volume.

At the time THE INDIA RUBBER WORLD was started there was practically no rubber literature, while a book "On the Valuation of Rubber Estates," if written at that time, would have read very much like the celebrated chapter on the snakes of Iceland. Yet with the passage of a few years comes a time when it is assumed that enough men are able to purchase rubber estates and desirous of so doing, to make profitable the issue of a moderate-priced book dealing with the subject expressed by the title of the work under consideration. Mr. Peck says that the usual method of valuation is to figure a certain assumed production and price, then assume the annual expenditures, deduct the latter, then decide from this income what the estate is worth. It is a result easily attained and, in the author's opinion, it is like most things easily gained—not worth much after you have it.

The assumptions made in the work are based upon Malayan experience, but, in the opinion of the author, are generally applicable to plantations of the eastern world, one variation being offset by another in a different direction. An interesting statement of his elucidation of this point is that, owing to the direct buying of Americans, the price realized by the planter is usually better at Singapore than at London.

Mr. Peck assumes that in any well-managed enterprise the entire capital necessary to the bearing stage will be met by annual calls, as needed. He assumes that all the rubber now planted, together with that soon to be planted, will not be sufficient to meet the world's demand for rubber at fair prices. He considers ten per cent. as a reasonable return for future years, with twelve per cent. as the present normal basis. He thinks that investors, who feel that their perfectly safe investments should yield the twenty per cent. realized by the venturesome pioneer, are not altogether reasonable in their expectations.

Turning the author's pounds sterling into American dollars, at the inexact but convenient ratio of one to five, he places, as follows, the normal cost of bringing rubber into bearing: $35 an acre for the first year after planting, $25 for the second, $15 for the third, $15 for the fourth and $10 thereafter each year until tapping has begun. This represents planting on cleared land. The cost of clearing represents an expenditure of $25 to $50 an acre. Other costs of planting he puts at about $15. The average he places at about $45, making the total expenditures up to the beginning of the fifth year an average of $145 an acre. The capital required for tools, machinery, etc., after tapping has begun, Mr. Peck figures at $15 an acre.

In the fifth year the planter ought to get a hundred pounds of rubber from each acre of healthy trees, and this ought to go on increasing. There is a wide variety of estimates as to what eventual yield may be expected, from a minimum of 300 to a maximum of 800 pounds. The author thinks that 500 is a safe estimate for the maximum yield in the ninth year and thereafter. The cost of production and sale of mature rubber he places at 9*d*, or eighteen cents, a pound. Referring to the low yields of young trees, he believes that at present prices tapping will not pay, and that it would better be deferred until a better yield could be expected.

As to the future price of rubber, the author, writing in January, 1914, predicts a moderate rise with considerable fluctuations during the present year, with a gradual drop thereafter. He thinks that 1916 will see an output of plantation rubber alone which will exceed the total supply of every description for 1913, and he believes that reclaimed rubber and the inferior grades of wild rubber will soon be practically out of the market. He believes that the average quality of plantation rubber will be better in succeeding years, owing to the larger proportion which will be derived from mature trees. This brings before us the prospect of a vast supply of uniformly high quality rubber at a price low in comparison with figures of the recent past.

Mr. Peck believes that the eventual normal price of rubber in the Singapore markets will be a shilling a pound, this allowing for fair wages, reasonable contingencies and a planter's profit of ten per cent. on invested capital. He thinks, however, that lower-priced rubber will so stimulate consumption that this normal price, otherwise due in 1921, will not actually be realized for some years later. The reasons for all his conclusions are worked out with great clearness and detail and the work is of interest throughout.

NETHERLAND GUIANA, SOUTH AMERICA—ITS DEVELOPMENT, Resources and Possibilities. By James L. O'Connor, Paramaribo. [Cloth, 8vo, 60 pages with 13 illustrations.]

IN this comprehensive handbook Mr. O'Connor has grouped a quantity of interesting matter affecting Netherland Guiana.

The principal geographical features of the Guianas are as follows:

	Area.	Population.
British	90,277 sq. miles	304,089
Netherland	57,900 " "	100,000
French	30,500 " "	40,000

Netherland Guiana (also called Dutch Guiana or Surinam) lies between British and French Guiana, with an area about that of the State of Mississippi. It is bounded on the south by Brazil and on the north by the Atlantic Ocean.

For the information of the visitors to the recent London exhibition, the booklet recalls the fact that on two occasions in its history Netherland Guiana was under English rule (1799-1802 and 1804-1815), having since the latter date been subject to Holland. Paramaribo, the capital, is situated about 18 miles from the mouth of the Surinam River. It has about 40,000 inhabitants, among whom nearly every nationality is represented.

In the shade the temperature seldom falls lower than 72° F., while it does not frequently rise above 88° F. The good health enjoyed by the Europeans and Americans who have for years made Netherland Guiana their home, bears witness to the salubrity of the climate. The average rainfall is 92 inches per year. While there is rain on about two-thirds of the days in the year, there is never a day on which the sun does not put in an appearance.

Among the chief physical features of the country is the network of waterways formed by some eight rivers, navigable for a certain distance to ocean-going steamers.

With luxuriant vegetation, indigenous trees and plants abound in profusion in the vast forests—which are full of wild animals and birds—while giant palms fringe the river banks.

Previous to the disturbance caused by the war, regular steamship communication was kept up by various companies with Europe and America, and a fleet of government steamers navigated the rivers of the country. The government railway, starting at Paramaribo, traverses the center of the colony for 120 miles, reaching half way to the Brazilian frontier.

AGRICULTURE.

So rich and varied is the soil of Netherland Guiana that there is practically no tropical product which is not grown within its borders. Principal amongst them are sugar, cocoa, coffee, bananas, rice, cocoanuts, rubber and balata.

The production of sugar has been relatively stationary, having only increased from 10,931 tons in 1909 to 11,652 tons in 1913. Profits are, however, satisfactory, though plantations are small. Cocoa has been exported from Netherland Guiana for nearly 200 years, the area laid out representing: 1862, 1,331 acres; 1873, 4,723 acres; 1913, 14,000 acres. Liberian coffee has since 1880 formed an important feature of the Netherland Guiana coffee industry. During the last six years it has been largely planted as a supplementary culture to rubber. In 1913 about 3,500 acres were bearing coffee, with a further area of nearly 4,000 acres in preparation for planting. The total exports of coffee to the United States and Europe were: 1910, 352,980 pounds; 1911, 431,790 pounds; 1912, 275,667 pounds; 1913, 455,504 pounds. Large profits are being made and are expected to continue.

Mr. O'Connor states that the "Surinam Congo" banana is of better flavor than the varieties from Jamaica and Central America. It excels, moreover, in carrying qualities and in withstanding a sea voyage. In 1913, the United States consumed 54,000,000 bunches, while English imports rose by more than 100 per cent. in the years 1903 to 1913, reaching in the latter year a total of 7,530,000 bunches.

RUBBER.

After unsuccessful results with seeds obtained from Pará in 1896 and 1901, an importation in 1905 from Henaratgoda (Ceylon) of 20,000 seeds produced 9,500 seedlings. The latter were planted out on clay soil and form the oldest regular planting in the colony. Another importation from Pará was made

RUBBER INTERPLANTED WITH BANANAS.

the same year. Since then seeds have been regularly imported both by individuals and through the Agricultural Department.

The greater care and expense involved in the cultivation of *Hevea*, it is remarked, is usually compensated by the sub-cultures. In Netherland Guiana *Hevea* is practically always planted with bananas, this system having a very good influence upon the plants. The young trees are protected from sun and wind, while the soil is less affected by sunshine and rain. Another advantage is that with bananas a profit is obtainable after a year, while if planted alone the trees would be unprofitable for three or four years, if not longer. In addition to bananas, coffee or cocoa is generally interplanted with the rubber.

Bananas, if planted without any other sub-culture, can be kept for about four years, after which a profit can still be obtained from the sub-culture of coffee and cocoa for some years. On plantation "Jagtlust" there is now a very good cocoa producing area together with ten-year-old *Hevea* trees. In annexed illustration rubber is shown interplanted with bananas. The following estimate is made of production per acre according to age of trees: 7 years, 110 pounds; 8 years, 150 pounds; 9 years, 210 pounds; 10 years, 250 pounds; 11 years, 280 pounds. At plantation "Voorburg" there are now 6,000 trees being tapped. This plantation has the largest area for *Hevea* under cultivation, and is about to instal machinery for preparing the rubber.

While no considerable quantity of rubber has as yet been exported from Netherland Guiana, the figure has grown from 2,200 pounds in 1911 to 8,900 pounds in 1913; and the author expresses the opinion that with the large areas planted in the last few years. *Hevea* rubber will soon become an important article of export.

BALATA.

A comparison is made of the Berbice and Venezuela systems of tapping, the latter method resulting in a larger production at one time, while by the former the trees are spared for a second tapping. It is proposed to fell trees having a diameter exceeding 15 inches and to tap the thinner ones with a taphook.

The following were the balata exports of Netherland Guiana, in tons: 1907, 342; 1908, 447; 1909, 618; 1910, 878; 1911, 1,027; 1912, 723; 1913, 1,186. About 10,000 men are employed in the balata industry, which is one of the most important in the colony.

To those not familiar with Netherland Guiana, Mr. O'Connor's handbook will prove most valuable, while to those wishing to renew their acquaintance with the subject, it will no doubt be of interest.

NEW TRADE PUBLICATIONS.

FOR a number of years after the United States Rubber Co. began to make a line of tennis shoes its annual price lists were modest affairs, simply showing illustrations of the shoes and giving in addition a brief description of each brand and the sizes in which it was made and the prices at which it was sold. But the tennis list issued this year is much more ambitious. It is a small book of 24 pages, printed in three colors on heavy paper, and describes and illustrates 17 different brands. In addition to the old familiar names Champion, Yachting, Gymnasium, Bathing and Vacation, there are a number of new brands, such as Palmetto, Quarter Deck, Regatta, Week End, Colonial, Parade and Veranda.

Each page has illustrative scenes in colors apropos of the shoe described, and as the general atmosphere of sporting shoes lends itself admirably to decorative effects the general appearance of this price list is exceptionally attractive.

"Safety Always" is the title of a 36-page booklet issued by the Miller Rubber Co., of Akron, Ohio—being a comprehensive digest of facts that drivers should know. In this booklet the traffic ordinances, state and municipal, of New York, Pennsylvania, Ohio, Indiana, Michigan and Illinois are given, with directions for signaling and illustrated explanation of police traffic signals. Four pages are given to the merits of Miller products and the methods adopted in the manufacture of the Miller tire, etc. Road rules, both common-sense and otherwise—the latter known as the "Fools' Twelve Commandments"—are given a place in the booklet, which concludes with a list of the company's distributing branches and agencies, of which there are 36 in as many cities in different parts of the country.

The September calendar in the monthly series being distributed by the Derby Rubber Co., manufacturers of reclaimed rubber, of Derby, Connecticut, suggests in its decorative as well as in its calendar features the approach of the fall season. The upper

part of the panel, over the business card of the company, contains a picture entitled "A Clean Double," showing a flight of wild ducks, two of which are making rapid descent, brought down by the rifle of the sportsman concealed on the edge of the lake.

A new wall hanger or window card, for garages and retail distributors of automobile accessories, and sufficiently striking in color effect to attract attention whether one happens to be in the market for such supplies or not, has just been sent out by the Firestone Tire & Rubber Co., of Akron. This hanger is 15 x 28 inches in size, printed in blue and orange on a white background, and calls attention in effective manner to the numerous tire patches and other accessories that form a part of the stock of the tire dealer. The hanger is arranged for mailing and can be folded for this purpose.

The National Association of Waste Material Dealers is issuing through its office at 170 Summer street, Boston, an Association Bulletin, the first number of which appeared on August 31, and later numbers of which will appear from time to time as matters of importance to members arise. This first number contains four pages, all filled with items of interest to waste material dealers generally, including a list of members—of whom there are now 88—of officers and committees, notices of meetings, standards of packing and a brief history of the association, which was formed March 24, 1913.

RUBBER RELIEVING LEATHER SCARCITY.

THERE is an old saying that "there's no great loss without some small gain." The present uncertainty regarding some lines of rubber manufacture, which, because of the unsettled conditions of business brought about by the European cataclysm, is pointing to a decreased demand for rubber, can certainly be partly balanced by the wonderful increase in the use of this material in the shoe industry.

Never but once before in the history of this industry has leather been so high priced as it is today. Once, along about the close of the Civil War, quotations were higher, but even then the prices were on a currency basis, with gold at a heavy premium. With the state of affairs at present confronting shoe manufacturers, it is a happy coincidence that the summer season just closed gave the stamp of approval to footwear in which other materials were used in place of leather, both in the uppers and in the soles.

The rubber footwear manufacturers have been making what are collectively known as "tennis goods" for many years. These were mainly cloth-topped shoes with thin cemented rubber soles. As outing shoes of the cheaper kind, and for yachting, outdoor sports, and for gymnasium use, these lines have had a steadily increasing demand.

Moreover, the public has been educated up to the value of rubber heels as shock absorbers and as means of securing noiselessness in offices and hospital.

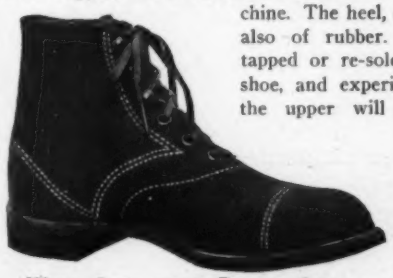
Then the tango craze set in, and people discovered that the light rubber-soled tennis shoes made firm, non-skid footwear for indulging in this somewhat gymnastic style of dancing, and shoes which until then were looked upon as suited only to the piazzas or the beaches invaded the ball-rooms at the summer resorts, and later the fashionable city *soirées dansantes*. Then the tennis shoe manufacturers made dancing pumps with rubber soles, and sold them like hot cakes.

These are probably the main factors which led to the evolution of the stitched rubber-soled canvas shoe and the rubber-soled leather shoe, both of which, though formerly known and sold in a small way, never achieved a real vogue until last summer. During that season hundreds of thousands of rubber-soled shoes of stylish appearance and fine workmanship were sold. They became a fad at seashore and mountain hotels, as well as on the promenades in all the large cities. Today the prices of all kinds of sole leather are high. Tanners say they must go higher. Shoe manufacturers may therefore hail with delight the growing demand for rubber-soled footwear. That the demand is growing is shown by the number of concerns which are now manufacturing rubber soles. It is a poor month which does not see a new concern starting in this line, while every company which previously made rubber heels has branched out in the manufacture of soles.

Naturally, there are various qualities of soles manufactured. The agent of a leading concern in this line stated to the writer that he could—and did—furnish rubber soles for as high a price as three dollars, and as low as thirty cents, a pair. It might have been these thirty cent soles which disgusted some shoe manufacturers, who had their shoes returned with the soles cracked through straight across the ball.

Of course every popular thing, if it is at all expensive, is imitated sooner or later in cheap quality. Rubber soles were no exception, but manufacturers have learned that rubber soles must contain rubber, and are buying soles which will not break in the machine sewing, and which will wear at least reasonably well under ordinary conditions.

One of the leading rubber footwear manufacturers seeing the trend of leather shoe prices, and foreseeing the probable inability of shoe manufacturers to produce a durable work shoe at a reasonable price, has added a line of footwear which is commanding a fast increasing trade. It has an upper of specially made duck of long staple cotton, a full slip-sole of rubber stitched to the upper, and a rubber sole stitched on by the Goodyear machine. The heel, of the usual height, is also of rubber. This shoe can be tapped or re-soled just like a leather shoe, and experience has shown that the upper will outwear two soles.



Work Shoe with Rubber Sole and Heel.

But it is not on work shoes that the use of rubber soles predominates. Quite the contrary. Today there are shoes of the best leathers and the finest workmanship with rubber soles and heels. Both men's and women's styles are thus made. There are ball-room pumps, promenade shoes, and business footwear not only for summer use, but for heavy winter wear. One objection raised against rubber soles is their weight. A thick sole of rubber is heavy, even though no more cumbersome than a similar thickness of leather sole. But with the better quality of rubber now demanded, the soles are made considerably thinner, while at the same time, because of the very nature of real rubber, they wear longer than the thicker leather sole. In fact a prominent manufacturer of these soles and heels states that in the impact of the foot on the pavement, rubber rebounds where leather scrapes along, and this fact accounts for the longer life of the former.

Another objection sometimes cited against rubber soles is their imperviousness. This is a distinct advantage in keeping outside moisture from the foot, but the opposite as inducing perspiration. This, however, is readily overcome by the use of leather insoles of good quality. Then again there is the tendency of rubber soles to slip on wet surfaces. To overcome this has been the subject of earnest experiment and study, and today, besides the various grades of more or less "pure" rubber soles, shoe manufacturers are offered, and are now using on their samples for next season, soles compounded of rubber vulcanized with a large proportion of disintegrated leather fibre, which, it is claimed, insure against slipping on wet pavements, and which are said to wear longer than either rubber or leather

soles. Experiments have also been made by adding cotton fibre to rubber for soles and heels; and even "steel wool" is being used in some lines of footwear for giving added durability to the rubber.

Parenthetically it may be said that for several years a prominent dealer in shoemakers' supplies has had a steady trade in soles and taps for repairing heavy shoes, to which he gives a fanciful name. It is really second-hand rubber belting died out in the shapes of soles, heels and taps. Every reader of this journal knows the quality of rubber and cotton duck used in making belting. These soles wear three or four times as long as leather of the best quality. While they show their layer construction at the edges, and no easy way has been found of

Suede Oxford with Welt-Sewed Rubber Sole and Wedge Heel.

'finishing" these edges, yet the soles are popular with motormen, teamsters and workmen, who demand wear, regardless of appearances. Why would not some experimentation along this line be profitable to the factories making similar lines of goods?

The spring and summer samples of shoes are now in the hands of salesmen on the road. Many manufacturers have directed their salesmen to keep in constant touch with their home offices, for with the present uncertainty of leather supply and leather prices, the cost and therefore the selling prices of all leather shoes are likely to be advanced any day. With rubber-soled shoes it is different. Manufacturers know, approximately at least, what the material will cost; so they can today set the prices for the entire season.

Manufacturers of men's and women's shoes in the fine and medium qualities state that they expect a heavy demand for rubber-soled shoes for next summer's wear. Of course opinions differ as to proportions, some believing that the call will reach as high as twenty-five per cent., while others, more conservative, place it at ten or fifteen per cent. If it only reaches the latter figure, that ought to be nearly forty million pairs of soles, sufficient to keep several factories busy for the next six months and absorb a considerable volume of rubber and compounding materials.

NATIONAL ASSOCIATION OF COTTON MANUFACTURERS AND THE FINANCING OF THE NEW CROP.

A report has been issued by the above association upon the recent Washington conference of those interested in the production, marketing, financing and manufacturing of cotton, attended by some 250 representatives of the cotton industry in its various branches. The conference was held on the invitation of the Secretary of the Treasury, Hon. William G. McAdoo, who stated that under the present law the banks could get all the currency necessary to take care of the situation. He considered that valorization was a wild and ridiculous experiment. It was his purpose to accept from the banks of the currency associations notes and obligations secured by properly issued and certificated cotton warehouse receipts. The banks, he considered, were the proper agencies to make the loans and to trace out the location of every bale of cotton behind the notes which were made the basis of this currency. He added that what was required was to get the cotton warehouses into shape.

In reporting to the members the result of the conference (in which he had participated) Mr. Albert Greene Duncan, the president of the association, has expressed the hope that support and encouragement would be given Secretary McAdoo on his constructive and conservative stand on the subjects dealt with.

THE COTTON SITUATION.

SOUTHERN spot cotton is receiving a good deal of attention at this time from the fact that the United States production for 1914 will approximate 15,000,000 bales. Under ordinary conditions 5,000,000 bales of this amount would be shipped to Europe and the remaining surplus production of our Southern cotton fields taken care of without further complication. The European war, however, created a condition that required prompt and effective measures to save the Southern cotton situation.

Prompt and effective measures were taken, and the assistance which the Federal Government extended to the cotton growers by the issue of National Bank currency, through designated banks, against notes secured by cotton warehouse receipts, has already greatly improved the situation. The result will undoubtedly be that the bulk of our cotton crop will be warehoused until the close of the war or until the spot price warrants selling. The fact that warehouse receipts are negotiable has resulted in a tendency on the part of the producers to hold their cotton. The cotton farmer is now able to renew his notes and secure further credit and supplies. He therefore views the present price of cotton with considerable indifference, and waits for a better market.

The "Buy-a-Bale-of-Cotton" movement has much to commend it for the enterprise displayed by its promoters, but as a practical business proposition it is open to some criticism. The movement had great advertising possibilities and was quickly taken up by keen advertisers with the object of furthering sales in the Southern markets. Among conservative people, however, the impression exists that a plan which would include the manufacturers of cotton goods in its beneficent scope would be more acceptable to the greater number of those interested in the cotton industry.

As a result of the war the foreign supplies of burlap have been entirely cut off. The estimated consumption in the United States is 700,000,000 yards per year. There is no burlap manufactured in the United States and consequently cotton goods must be used as a substitute. Some mills are now putting up their product in cotton goods in the place of burlap, thus creating a new outlet for cotton fabrics.

The estimated United States production of Sea Island cotton for this year will be 75,000 bales. Last year there was a shortage of 19,000 bales, which was made up from the previous year's crop. This means a shortage for the present year, as there has been no visible increase in the production of this staple. This indicates that the price of tire fabrics will be held firmer on account of the size of the Sea Island crop and the uncertainty of the arrival of Egyptian supplies due to the war.

It is understood that contracts are being placed for hose and belting duck on a basis of 19½ cents per pound, but this price is liable to advance with the price of the raw product.

LOW BIDS ON FIRE HOSE.

Of the bids opened September 11 by the City Commission of Trenton, New Jersey, on the fire department's requirements of 2,000 feet of rubber lined double cotton jacket hose, that made by the Empire Rubber & Tire Co.—62.9 cents—was the lowest. Other Trenton companies which submitted bids were The United & Globe Rubber Manufacturing Co.—68 cents—and the Hamilton Rubber Manufacturing Co.—78.5 cents. These are said to be the lowest bids ever received by the city under present specifications, which are considered very exacting.

GUIDING THE MOTORIST ON HIS WAY.

HAVING a motor car is not all of motoring—it is only one of the requisites. Another requisite is to know how to get to where you want to go.

Of course, in former years it was impossible to tell when you came to the fork of the roads which went where, and it did not always occur that some neighborly person familiar with the ground happened along just at that moment to give the needed information. To be sure, the good road books which began to appear in the old bicycle days and multiplied when the motor came in vogue were a material help, but still the good road books tried to cover so much ground in such little space that they left a great many puzzling corners entirely unattended to. And then, it is a great consumer of time, not to say a most inconvenient process, to take out a map at every cross road and discuss what particular point in the map fits the special place where you happen to be. The sign post that not only points the way but tells the distance is a vast improvement over the road book; and The B. F. Goodrich Co., of Akron, Ohio, if it does not exactly cover the United States with these sign posts, has at least made a very good start towards it, for its sign posts, with their explicit directions, now cover 40,000 miles of American highways.

RAYMOND BECK, CHIEF OF THE TOURING BUREAU.

This idea of giving the motorist on the road just the information he needs started in a small way some years ago with the Goodrich company, but it has now developed into an extremely large and very important department.

They now have three truck crews of trained men working in different sections of the country under the direction of their Touring Bureau. The type of sign decided upon after long and careful experimenting is simple, effective and durable. It is circular in shape, is made of porcelain enamel in three colors, with arms pointing to destinations in as many directions as are required. Each arm shows the town name and mileage thereto. The enameled sign is erected on a ten-foot, creosoted post of cedar or oak. Danger signs are placed at railroad crossings and short turns, and every effort is made to assure safety to the tourists. When one considers the extent of the territory covered, the magnitude of the task is appreciated; but little by little they are recording distances in all sections. As stated above, they have already road-marked over 40,000 miles of highway and expect to do many more. Their guide posts have been endorsed by practically all of the State Highway Commissions and several of these bodies have even gone so far as to erect on their own initiative these same Goodrich guide posts along their more traveled roads. Among these are the associations of South Dakota, Wisconsin and Michigan.

To be sure, the basic purpose back of these road guides is to bring the Goodrich tire to the attention of the motorists. In other words, it is an advertising device. But it is a wholesome and effective sort of advertising, because it cannot fail to get the good will of tire purchasers. Nothing is quite such a relief to the tourist's mind as to find at the crossing of the ways an accurate index finger pointing him just where he wants to go and indicating just how long it will take to get there. Here is a photograph of one of the Goodrich guide post trucks at work.

ONE OF THE GOODRICH GUIDE-POSTING CREWS ERECTING A ROAD MARKER.

E. C. TIBBETS, GENERAL ADVERTISING MANAGER.

Another department of the Goodrich Touring Bureau, and one that is desperately hard worked in summer, is the department devoted to giving applicants specific information regarding any piece of road in which they may be interested. The Bureau often receives as many as 400 requests in a single day from people who want to know all about a certain piece of road, possibly in Maine, likely enough in Florida, or perhaps over on the Pacific coast. In order to answer all these questions the Bureau is compelled to be familiar with all the roads of importance in the United States; and that is no small job, when one recalls that the mail route roads of the United States alone aggregate over a million miles.

These requests for special information not only come from all over the country, but come from all kinds of people. The Bureau does not inquire even whether they use Goodrich tires. No questions are asked, no charge is made, and all get the information they desire. Here is a photo-reproduction of Mr. Raymond Beck, chief of the Bureau. The other portrait shown above is that of Mr. E. C. Tibbets, who, as the general advertising manager of the Goodrich company, encourages and abets Mr. Beck in the highly valuable and exceedingly humanitarian work of throwing light on dark places and guiding the stranger in the way he should go.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE general rubber trade in Akron is about in the same condition as it was before the European war. Factories are running about the same, several of them having under contract or in their possession a crude rubber supply sufficient for the remaining months of the year. The others feel confident of being able to secure all the crude rubber they need, so that the general tone of business is good. Some of the factories at the beginning of hostilities cut down their working forces, but these have been increased again practically to the previous number. The mechanical rubber line is strong and active. The tire business is slow, as is generally the condition this time of the year.

* * *

The Firestone Tire & Rubber Co. is working on a new addition. The slowness in general business during the last year and a half has affected very little, if any, the rapid construction and enlargement of the Firestone plant. This is reflected in the yearly report of the company, which was submitted at the annual shareholders' meeting, September 2, at which the old board of directors was re-elected, as follows: H. S. Firestone, R. J. Firestone, Will Christy, Amos Miller (of Chicago), and Dr. Sisler.

The sales for the fiscal year ending July 31 amounted to almost twenty million dollars, on which the net profit was $2,857,719. The increase in output during the year was 78 per cent. over the previous year's production, which was by far the largest of any year in the company's history.

On October 15 the Firestone company will hold its sales convention, and the active sales force, which consists of between 250 and 300 men, will be in Akron for a week. These conventions form a sales school of the highest type and have proved very beneficial to the company. The work of this force in the field has caused to be added since last October 95,000 square feet of floor space to the Firestone plant.

* * *

The Republic Rubber Co., of Youngstown, Ohio, under the direction of Thomas L. Robinson, and sales manager John H. Kelly has just held its yearly sales meeting at Youngstown.

* * *

The Akron Rubber Mould & Machine Co. is placing on the market an improved vulcanizer for auto. dealers who wish to do their own repairing.

* * *

The Adamson Machine Co. has commenced construction of a $20,000 addition to its building. It is also installing new machinery in the part of the factory completed about one year ago.

* * *

The Akron branch of The Birmingham Iron Foundry is manufacturing an automatic mixing apron, for which its inventor, Mr. P. E. Welton, claims special merit.

* * *

The Gordon Rubber Co. announces an increased business as the only effect so far experienced as a result of the war.

* * *

W. W. Wildman, general manager of the Portage Rubber Co., says: "The European war has had no effect in the business of the Portage Rubber Co. except in the way of increasing our sales, as since the war has been declared our business has been better than ever before, and we have been compelled to operate our plant overtime.

"We might add that our sales for the first nine months of our twelve months previously, and at the present time we are fully thirty days behind on orders. We are now adding to our power plant by installing a battery of Stirling boilers. This, with additional equipment that we are putting in, will enable us to largely increase our output."

* * *

The Mohawk Rubber Co. is remodeling a building 61 x 100 feet, and building another 31 x 56 feet.

* * *

Charles E. Wood, crude rubber broker of New York, has opened an office in Akron—at 308 Hamilton Building—of which C. E. Siegfried will have charge.

* * *

President B. G. Work, of the B. F. Goodrich Co., and Mrs. Work have returned to their home from Carlsbad after an exciting trip through the European war zone. Their automobile was seized by the German government and the French chauffeur retained by the German troops. After suffering various other inconveniences they arrived at Rotterdam, from which place they sailed for New York.

* * *

The magnificent home of Frank Seiberling is rapidly nearing completion. The immense park, with its natural scenery, which surrounds it, affords a setting which is rarely excelled by a combination of the best of nature and of artistic skill.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

THE Boston rubber goods situation is peculiar, though probably no more so than in any other section of the country. A canvass of the different branches of the trade gives one a pretty fair idea of the state of affairs, but in some cases widely divergent ideas as to present conditions and future prospects. I wish I could give you the details of these personal interviews with the names of the persons questioned, but there seems to be a most marked disinclination on the part of many to have their views published with their names attached. They were not backward, however, in expressing their opinions, provided their names were not mentioned.

For instance, an importing house told THE INDIA RUBBER WORLD correspondent that while at first the securing of crude rubber was a difficult matter, the situation is clearing; that considerable rubber en route from the Far East was held up because the ships containing it were flying flags of belligerent nations and had therefore put into neutral ports to prevent capture. There were many such ships in the harbors of the Mediterranean. The carrying trade from South American ports is generally in British or German owned ships and they had discontinued their sailings. Then Brazil declared a long-continued holiday, the banks closed and it was impossible to do business. Later, though rubber was for sale, there was no possibility of exchange. This importer, however, hunted up some one with claims against South American merchants, purchased the accounts for cash, and bought rubber, tendering these accounts as payment, and secured some hundred tons of crude rubber.

Few consumers purchased crude rubber at the high quotations noted a few weeks ago. Of course every manufacturer has a larger or smaller supply on hand, and unless he was seized by the contagion of alarm, he refrained from buying, running the risk of higher prices later. It proved a good gamble.

A manufacturer of mechanicals, when interviewed, said that business is considerably behind that of a year ago, a fact accounted for by the general tendency in all lines to economize, and to the shutting down, or working on short time, of many manufacturing establishments.

Regarding druggists' soft goods, a producer says that while the demand may not be so general, there are some large contracts being offered by the syndicates which run a larger or smaller number of stores. These people are close buyers, but

they give quantity orders, and the factories are kept running along on full time at a moderate profit.

The waterproof clothing men are busy, though with some of them the outlook is not so bright. Their foreign trade is cut off, and with some this is an important part of their business. Then, again, they complain of the difficulty in securing some lines of fabrics which they need. Those using imported cloths are not the only ones affected. Many who have contracted for domestic fabrics find the mills held up because of the embargo on dyes. However, some of the makers of high-class garments report a heavier trade on these goods because of the decline in imports of foreign-made waterproof coats and cloaks.

The tire men seem to be hit pretty hard. Some factories have curtailed their output. One factory where a small number of tires was made has discontinued this department. Another is working only four days a week, while a larger producing plant is working right along with as large an output as usual.

The rubber boot and shoe factories are running reasonably full. Many retailers who declined to order in the spring and early summer are now stocking up, and this reassures the jobbers to the extent that they are sending in supplementary orders to the manufacturers. The mills made up floor stock during the summer in anticipation of this very condition, and shipments are heavy.

* * *

The Boston Boot and Shoe Club is the largest trade dining club in the city. During the fall and winter months six or seven banquets are held at the Hotel Somerset, to which some of the most noted speakers of the country are invited. Once, several years ago, a "Rubber Night" was held, at which many prominent members of the rubber footwear industry were guests. There is a possibility that an evening this season may be devoted to this subject.

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Hon. L. D. Apsley, president of the Apsley Rubber Co., of Hudson, was suddenly called to Lock Haven, Pennsylvania, early last month by the severe illness of his venerable father, who died on September 10. This was a second affliction to Mr. Apsley, whose wife died only a few months ago.

George Apsley was Lock Haven's "grand old man." Up to his ninety-fifth year he walked back and forth every day from his house to his shoe supply and findings store, which he established in 1861. He was born in Chestertown, Maryland, in 1818. His son, L. D. Apsley, made it a duty to spend Thanksgiving every year with his father, and on every such visit a game of checkers with the old man was a regular part of the programme. It is reported that this was the origin of the checker board printed on every case of Apsley rubbers sent from the factory.

* * *

Ira F. Burnham, president and treasurer of the Stoughton Rubber Co., spent his vacation at Whitefield, New Hampshire. He returned to business September 10, reporting very cold weather in the White Mountain region, with the summits of the Presidential range covered with snow.

* * *

Washington B. Cook, manager of the Boston store of the Gutta Percha & Rubber Manufacturing Co., had a lively experience early last month. He had been summering, with his family, at Lake Sunapee in New Hampshire. Business requiring his presence in Boston, he decided to spend the night at his home in Sharon. Arriving there at a late hour, he opened the front door with his latch key and was confronted by a burglar, armed with a revolver. Ordered to put up his hands, Mr. Cook, who was certainly surprised, and who was unarmed, obeyed the order, and the thief escaped. Then Mr. Cook got busy at the telephone and a man-hunt was instituted by the police, in which more than 300 citizens took part. An hour or two later one of the volunteer searchers, tiring of the game, started across lots for his home, when he saw a man enter the bushes on the lawn. Later he saw the man lying in a secluded spot. The telephone brought the police, who found a man serenely sleeping in the bushes with Mr. Cook's revolver in his hands and the Cook family jewels in his pockets. Mr. Cook is congratulating himself that his timely arrival saved for him jewels and silverware of considerable value.

* * *

The Haskell Golf Ball Co.'s suit against the Sporting Goods Sales Co. has been decided in favor of the Haskell company. The United States Circuit Court of Appeals found the complainant's patent valid and that the defendants' ball was an infringement holding that the Haskell ball's core and shell in combination produce a new mode of operation and that the patent is not void, as disclosing no patentable invention.

* * *

The C. A. Edgarton Manufacturing Co., of Shirley, has voted "that the name of this corporation be, and the same hereby is, changed to the President Suspender Co." Thus the name of the founder of this important business disappears; but sentiment must give way to modern business expediency. The product of this company is so thoroughly advertised that it has a world-wide reputation, and it is certainly advisable that the company should bear a name easily identified with the goods.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

EFFECT OF THE WAR ON THE RUBBER INDUSTRY.

WHILE much anxiety was expressed among those concerns connected with the manufacture of rubber goods in Rhode Island during the days immediately following the outbreak of the war in Europe because of the fear that hostilities might prevent the procuring of crude material, a much more optimistic sentiment now prevails.

At first a very pessimistic feeling pervaded the local trade and several of the manufacturers in Providence and vicinity made no secret of their fears. Almost immediately a curtailment was begun in production and a cutting off in the time card and number of employes. However, the conditions do not seem to have been so disastrous as was anticipated and there is now a more settled feeling. A majority of the manufacturers now express themselves as confident that the coming winter's business will fully equal, if it does not exceed, that of a year ago.

Most of the factories are now working full time and to nearly full capacity. One plant, which dropped its night shift at the beginning of the European trouble, is still running short time, and the night workers are still idle. Another plant is holding all orders for Europe for the present, but is shipping some goods to other countries, especially to South America.

The makers of rubber boots and shoes are finding a fairly good business and most of these plants are being operated to their full capacity. The outlook is regarded as being very good with the price of crude rubber working downward.

Col. Samuel P. Colt, of Bristol, president of the United States Rubber Co., who arrived home early in September from Liverpool, was in Paris when war was declared. He had been in Europe for some time previous to the outbreak and had naturally given considerable attention to the interests of his corporation and to the rubber situation generally.

Concerning the effect of the war upon business Colonel Colt said, in an interview: "In the end the war in Europe is certain to prove of great benefit to the United States and its diversified business interests. We have already secured a great deal of trade that had formerly been closed to us, and we will not only keep it but will materially increase it. Of course, it is only natural to expect that for a time business would suffer owing to the unusual and unnatural financial strain consequent upon the

terrible war which is involving half a dozen of the great nations of Europe.

"As for the United States Rubber Co., I cannot speak very definitely at present, as I have only been able to go into its affairs and matters connected therewith cursorily since my arrival, but I am very glad to say that I have found affairs in practically as good condition as when I went abroad, which, of course, is highly satisfactory. Before I went abroad, I made special and specific arrangements for the importation of a shipload of crude rubber from Singapore, to be delivered in this country for the United States Rubber Co. should the emergency require it. It was further arranged, in order to be upon the safe side, that the ship carrying this cargo was to sail under the American flag. At the present time, however, it does not appear to me that it will be necessary to complete the arrangements in the Singapore deal.

"I believe that the war is to be of long duration and that nothing that the world has seen since the fall of Rome can compare with the present war in any particular. It is absolutely necessary, therefore, to be on the alert at all times to take full advantage of all business conditions and situations and to conserve all the forces possible to meet any exigencies. The general conditions, not only in this country but throughout the world, should naturally produce a good season's business, and there is no doubt to my mind that we must certainly reap the benefit, although, of course, we must expect that there will be a greater or less advance in prices all along the line."

The Davol Rubber Co., of this city, is operating its plant to nearly full capacity, about 85 to 90 per cent. of its force being now at work. Orders from Europe are exceedingly scarce at this time, the company not having had any calls direct from Europe in nearly three months. They have, however, been shipping a small amount of goods to China, Japan and South America.

"The principal effect of the European situation upon our business," said an official of the company, "is the high price of colors, talc and antimony, large quantities of which are imported. We have a limited supply of these materials on hand and are investigating domestic sources and have much encouragement that the deficiency may be met through such channels. As large quantities of these materials are necessary in the mixing of the rubber for our productions, we are especially concerned in this direction. Our manufactures include varied lines of rubber goods utilized in druggists', medical and surgical work, and it is only natural to suppose that these departments will be unusually stimulated. This is to be better understood from the fact that much of the surgical rubber supplies aboard the steamer 'Red Cross' was made by the Davol company, but was not shipped from the factory direct to the vessel."

The plant of the Bourn Rubber Co., this city, is being operated to full capacity at this time, and the outlook is reported to be very good. Reports from their agents in all sections of the country indicate that business is certain to be good from now on, if not better than a year ago, from the fact that retailers sold down so close last winter and spring. The wire department is also very busy, having large orders on hand.

The Revere Rubber Co.'s plant on Valley street is furnishing employment for about 75 per cent. of its capacity during the day time, working on a five-day schedule, closing down entirely on Saturdays. At the outbreak of the war it terminated its night shift and has not since resumed it.

* * *

The following is a list of all corporations, concerns and individuals connected with the rubber industry in this city that are assessed for $50,000 or more, together with the valuation placed upon their property by the Board of Tax Assessors, according to the report just filed with the City Treasurer:

American Multiple Fabric Co., $94,880; Joseph Banigan estate, $1,004,380; Joseph Banigan Rubber Co., $160,100; Augustus O. Bourn, of Bristol, $113,640; Bourn Rubber Co., $147,000; Mary C. Banigan, widow of John J. Banigan, $53,300; Samuel P. Colt, of Bristol, $210,100; Davol Rubber Co., $400,000; Glendale Elastic Fabric Co., $175,400; Brown & Sharpe Manufacturing Co., $4,074,440; Mechanical Fabric Co., $389,740; New England Butt Co., $191,420; Samuel M. Nicholson, $199,600; Nicholson File Co., $706,880; Rhode Island Hospital Trust Co., trustee under the will of Joseph Davol, $450,000; Revere Rubber Co., $1,443,780; Henry D. Sharpe, $523,520; Lucian Sharpe, $319,880; United States Mill Supply Co., $57,340.

The tax assessors of the towns of Bristol and East Providence have recently filed their annual levies for the year, and the following are among the larger taxpayers. In Bristol, Col. Samuel P. Colt, president of the United States Rubber Co., is the largest individual taxpayer, his tax this year being $2,852.55 on property valued at $1,924,860. The Bristol list includes: Augustus O. Bourn, assessed on $265,000; Sarah F. Bourn, $140,000; Le Baron B. Colt and wife, $90,000; Consumers' Rubber Co., $124,000; National India Rubber Co., $5,016,000.

The East Providence list includes: American Electrical Works, $638,500; Eugene R. Phillips, $22,235; Washburn Wire Co., $380,516.

* * *

Substantial improvements have been made at the south entrance to the factory of the National India Rubber Co., at Bristol, where a new pavement of block stone has been laid to resist the encroachments of the heavy teaming.

Frank B. Wilson, of the clerical department at the National factory, is to be a candidate for Town Treasurer in Bristol.

* * *

The Killingly Manufacturing Co., at Killingly, Connecticut, operated by the Goodyear Tire & Rubber Co., of Akron, for the manufacture of especially heavy auto tire fabrics, has been installing considerable new machinery purchased in this city, which is expected to increase the output of the plant fully 30 per cent. The plant was first opened about fifteen months ago by the Killingly Cotton Manufacturing Co., but was later taken over by the present occupants, who have removed all the old machinery and replaced it with new and special machines. It is the only plant of its kind in this section of the country.

* * *

The City Council of Woonsocket has voted the money for the work upon the new footbridge across the Blackstone river, from Constitution Hill to Fairmount street, and the work has already been commenced thereon. This bridge will accommodate the hundreds of operatives who are employed in the Woonsocket Rubber Co. and other large mill plants in that section.

The factory of the International Rubber Co., at West Barrington, is being operated at present on the schedule of four days a week.

R. S. Emerson, of this city, has recently become agent of the Consumers' Rubber Co., at Bristol.

John Baker, formerly a department foreman at the factory of the Bourn Rubber Co., this city, and for many years previously department foreman on rubber coats at the National India Rubber Co., died at the City Hospital in this city recently of tuberculosis at the age of 56 years.

THE RUBBER TRADE IN CHICAGO.

By Our Regular Correspondent.

THE rubber trade of Chicago is a little quiet, a fact attributable, according to local merchants, to the indirect influence of the war, a certain depression having been created which tends to inspire economies and to diminish expenditures.

Much tiling business is being placed with the rubber firms of

the city at the present time, many of the large office buildings which have been remodeled and erected during the summer having arrived at the finishing stage. These buildings, under present fire protection rules, all require a considerable supply of fire hose.

* * *

The Baker-Vawter Co., 22 South Clark street, had an attractive window display this week of the "Rush Rubber Eraser." The feature of the display was a magnetized glass circular motion outfit, in which a miniature clown and a Teddy bear ran a never-ending relay race, with the eraser as the article to be passed. The display attracted a great deal of attention.

* * *

Rubber goods of all sorts for household use were on display at the National Household Exposition, which was held at the Coliseum here this week. The show was visited by thousands of people. From both financial and advertising standpoints, the exposition was a great success.

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The Peoria Belting & Rubber Works—a branch of the Holmes Packing & Supply Co., of Chicago—is temporarily located at 1100 Old Colony Building, Chicago, its offices and sales rooms in Peoria having been completely destroyed by fire on July 27.

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The Manufacturers' Rubber & Supply Co. has been incorporated at Chicago by W. E. and W. R. Anderson and N. Johnson, with a capital stock of $10,000, to manufacture, buy and sell automobile appliances and rubber goods.

* * *

The Positive Puncture Plug Sales Co. has been incorporated at Chicago to manufacture and deal in automobile supplies, accessories, etc. The incorporators are: John H. Nowlin, F. C. Corbitt and O. W. Pellage, and the capital stock of the company is $15,000.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

THE war in Europe has had no depressing effect on the rubber trade of Trenton, trade activities going on without apparent interruption of any kind.

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The Thermoid Rubber Co., whose developments demanded additional space, has purchased a plot of ground 75 x 1,000 feet in area adjoining its present works. This company manufactures, in addition to various other rubber goods, the "Nassau" tire, which has especially distinguished itself in a number of the recent races. In the Elgin National Trophy race, late in August, the winner, Ralph DePalma, covered the entire 301 miles without a tire change, three of the tires used being the same which he had used in the 301 mile Cobe Trophy race of the preceding day, when an average of 73.6 miles an hour was made, with only one tire change. Nassau tires were also used in the Elgin race by Bob Burnam, who withdrew after 289 miles without a sign of tire trouble—a feat which he describes as "most remarkable for this course."

The Thermoid company has issued and distributed a War Atlas, containing maps of all countries engaged in the present war, with their colonial possessions. This atlas also gives tables showing the strength in numbers of the respective armies and navies, the principal cities in each country and portraits of the ruling monarchs. It is a book 10 x 13 inches, instructive and interesting and likely to be carefully preserved by all who receive copies. The only suggestion of its real purpose—that of keeping the Thermoid name and product before the public—is on the last page, where Safety Brake Lining is illustrated and its merits described.

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The Essex Rubber Co. is erecting a new building at its plant in this city. This building is to be of steel, brick and concrete, two stories high, and will cost in the neighborhood of $15,000.

* * *

The Ajax-Grieb Rubber Co., whose fiscal year ended August 31, reports a greater volume of business than ever before in the history of the company—and this in spite of the fact that a drop of 28 per cent. in tire prices in November last had to be made up before any gain could be shown. The Ajax company is optimistic regarding the coming season, the statement that "the supply of Ajax tires never has been equal to the demand" still applying. No advance has so far been announced in the price of this company's tires as a result of the war and none will be made as long as the supply of crude rubber lasts which was bought at prices prevailing before the war.

A novel idea has been successfully followed out by an Ajax dealer in Alabama. Scouts are sent out around the town who note the condition of owners' tires and report to the dealer. He in turn reports to owners whose tires are so worn as to be likely to soon need new casings, and their trade is solicited. This service is said to be in favor with the automobile owners and to be building up a large trade for the dealer.

* * *

State receipts from motor vehicles amounted for the first seven months of the year to $734,573, a gain of $145,565 over the corresponding period of last year and of $73,127 over the entire year 1913. In the seven months 63,097 cars and 8,854 motorcycles have been registered and 60,626 drivers' licenses issued.

* * *

Howard Zelley, the Newark branch manager of the Empire Rubber & Tire Co., of Trenton, started September 15 for an extended business trip, which will include Buffalo, New York; Cleveland, Ohio, and Detroit, Michigan.

* * *

The John A. Roebling Sons' Co., which manufactures rubber covered and other wires, recently contributed to St. Francis' Hospital in this city the sum of $2,000 towards the purchase of a sterilizing plant. This company has been a benefactor of St. Francis' on numerous occasions in the past, having furnished rooms in the institution and also donated the land required for its growth.

THE RUBBER TRADE ON THE PACIFIC COAST.

By Our Regular Correspondent.

THE Knight Tire & Rubber Co., of Canton, Ohio, which was formerly represented in San Francisco by the Halliwell Co., has established a direct factory branch in that city, of which J. A. Fry—who has been connected with the Knight company for some time—is manager.

This company has also established salesrooms at 1710 Broadway, Seattle, Washington—in charge of E. J. Moskowitz—from which the trade of Oregon, Washington, Idaho and British Columbia will be supplied with Knight tires.

* * *

E. D. Wilson, formerly connected with the Savage Tire Co., of Los Angeles, has purchased the business of the Webster Supply House, at Twentieth and I streets, Bakersfield, California, the only exclusive automobile supply house in that city, which he will continue along more extensive lines, having put in a new and complete stock and equipment.

* * *

The Fisk Rubber Co., of Chicopee Falls, Massachusetts, has established a factory branch at 725 South C street, Tacoma, Washington, intended to supply the trade throughout the southwestern part of the state.

* * *

A contract has been made between the police department of Seattle, Washington, and the United States Tire Co., calling for

the use of that company's tires on all the motorcycles employed in the department.

* * *

The Universal Tire Co. is purchasing additional equipment for its automobile tire plant at Anaheim, California, the president of the company, H. H. Haldaway, having recently visited the eastern market for this purpose.

* * *

The Davis-Fry Manufacturing Co. is turning out at its plant in Oakland, California, a line of pneumatic tires and tubes for automobiles as well as a solid truck tire, under the brand name "Hercules." The patent rights of this company cover the making of a tread with fabric on edge, a new feature in construction which is said to prevent skidding and to add greatly to the durability of the tire. The fabric is placed at acute angles with the road.

FATIGUE IN MOTOR TRUCK TIRES.

By A. P. Eves.

THE automobile truck as it is known today is the product of less than ten years' thought and endeavor and the whole industry is suffering from want of experience. The tires are the most talked of part of the machine, because they are the subject of more trouble and more expense than all other parts of the machine combined. This condition finds the manufacturer of tires at fault. He has not progressed as fast as the manufacturer of other truck parts. Solid tires for large trucks are made along the same lines and with practically the same chemicals as horse-drawn vehicle tires were compounded from ten years ago. Excessive strains due to high speeds under heavy loads, it seems, have been entirely over-looked in tire construction.

The steel manufacturer was not long in arriving at the conclusion that steel as made when the automobile was in its infancy would not stand the repeated work under heavy loads of the speeding machine. The automobile industry brought forth the need of an anti-fatigue steel. The steel manufacturer produced nickel, chrome-nickel, vanadium and a host of other special steels to meet the demand; and they met it nobly.

Solid tires do not stand the work required of them. Tires that are guaranteed for 8,000 and 10,000 miles on the average in New York and Philadelphia do not run 2,500 miles. To be sure they are adjusted, but there is the delay and inconvenience of the change.

Tire manufacturers after two or three years of observation and some spasmodic experiments, have adopted a schedule of carrying capacities which is now considered standard. This schedule concerns itself altogether with the dimensions of the tire but specifies nothing whatever about the composition of the tire. It does not mention a standard density or include a physical requirement.

A new steel had to be made to stand the strains of the fast going and heavily loaded machine. The automobile made possible the anti-fatigue steel. Rubber is much like steel in many respects. In the by-gone days of small carriage tires, if the tire had a good tensile strength, with proper elongation and set, it was considered good. The automobile industry has brought forth the fact, that altho rubber may be up to requirements in tensile strength, elongation, and have the necessary resiliency, when it is subjected to repeated work undergoing vibrations caused by shocks it must possess other qualities to enable it to meet these entirely new conditions. Take a small piece of rubber one inch square and of any convenient length, hold it so that two inches of its length can be stretched an infinite number of times. If the two inches of the exposed surface is stretched to two and a half inches a certain number of times it will break. Now, then take another piece of the same composition and same dimensions and fasten it so that the exposed two inches are compelled to stretch three inches. It will also break but in much less than half the time. As these strains approach more nearly to the elastic limit, the deterioration is enormously hastened. This fact assumes great importance when it is noted that the deterioration does not take place at the same rate in all compounds.

A one inch section of a good solid tire compound should elongate 5½ to 1. That is, the one inch section should stretch five and one-half times. It should take between 1,500 pounds and 1,600 pounds to produce this elongation, when the test piece will break. One hundred pounds will probably stretch this test bar one-half inch; if this load can be repeated several hundred times the test piece will break, yet it has never at any time had the full load which is at least 1,500 pounds. The rubber has been worn out by the repeated load of 100 pounds, and this is the action that wears out the tires in service and the greater the load the sooner the tires wear out. This action is called the fatigue.

Compression is another factor in the disintegration of the solid tire. If a load of 25 pounds is placed on a square inch of rubber it will yield; if the load is removed the test piece will fly back to its original form. If this action is repeated a great number of times the rubber will disintegrate. This is a quality that should be taken into consideration in the manufacture of the anti-fatigue tire. This is the action a rubber tire gets under load.

Repeated elongation and compression under a standard load should be a great factor in producing the truck tire of the future.

The man that owns the truck is the one that suffers most from bad tires, and he should insist on having good tires, as they are cheaper in the long run. Then he should be careful of them. Overspeeding and overloading would break axles, steering knuckles and springs if it did not wear out the tires, but as tires are made for the protection of the other machine parts they are the first to go.

The automobile industry has brought forth the need of an anti-fatigue tire or a compound as near anti-fatigue as possible. The automobile manufacturer is also partly to blame for the poor showing of the tires today. He does not insist on quality; all he asks is a long mileage guarantee and a low price. Quality is not a consideration, and it is cheaper to make replacements than to give quality, for adjustments are not made at manufacturers' prices.

A RUBBER COMB WITH A HOLLOW BACK.

This "Revelation" hard rubber comb illustrated here cannot be properly classified under new goods, for as a matter of fact it has been on the market for several years and was described quite a long time ago in this publication; but it probably is new

Revelation Hard Rubber Comb.

to many people, and it certainly is interesting, as it has the appearance of a very heavy comb and yet, its broad, round back being hollow, it is distinctly a light comb. Its size makes it easy to grasp, and its lightness makes it comfortable to use and less liable to break when it falls. (Harburg Rubber Comb Co., 335 Broadway, New York)

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

News of the American Rubber Trade.

THE MULCONROY CO. TAKES ON ALL-METAL HOSE.

THE Mulconroy Co., of Philadelphia, has recently taken over the all-metal hose business of the Schoen-Jackson Co., of Pennsylvania, having acquired all its patent rights, stock and machinery, and employing all of its experienced metal hose workmen. The Mulconroy Co., owing to the increased demand for a flexible hose for high pressure steam, oil and gas, decided to add an all-metal hose to its line, and after many tests concluded that the Schoen-Jackson type best met the requirements and consequently took steps to acquire this line.

MODERN HOUSES FOR FACTORY WORKERS.

The American Hard Rubber Co., of New York, recently applied for permits for the erection of a number of two-story brick dwellings at College Point, Long Island. This is but the beginning of what will probably be an important development. This company built houses for its employes more than thirty years ago, on the community plan, but naturally modern conveniences were not very conspicuous in houses built so long ago. It is the company's intention to tear down these old dwellings and erect in their place detached dwellings with all the modern improvements.

A TRADE EXPANSION COMMITTEE.

The firm members of The Rubber Club of America have recently received a communication from the secretary saying that it has been suggested that a central committee of five manufacturers with offices in New York (other than the present members of the Executive Committee) be appointed as a Trade Expansion Committee to consider the problems that come under this general head and to supervise the distribution of information regarding the possibilities of trade in the foreign markets opened by the war; also to act as a War Conservation Committee to deal with any question of finance and commerce that may arise.

HOW TO RECOVER CONFISCATED CARGOES.

In the early part of September the secretary of The Rubber Club sent a letter to all the firm members of the club referring to confiscated cargoes and stating that "the Marshal of the British Prize Court has informed the United States Consul General in London that neutral owners of goods on vessels seized by British ships can obtain possession of their property, when not contraband of war, by applying to the Procurator General, Treasury Chambers, Whitehall, London, England, who will require proof of ownership and particulars as to freight, whether paid or unpaid."

APPEALING TO THE INDIA RUBBER WORLD FOR INFORMATION.

Since the outbreak of the war and the total disarrangement of European markets this publication has received a number of requests from English manufacturers for information relative to American supplies of the particular materials that they employ. One large English manufacturer wants to know where he can get rivets with hard heads and soft shanks. He says he uses over a million a month and would place a fairly large order at a reasonable price.

Another manufacturer also asks where he can get supplies of steel studs for non-skid tires.

Then there comes a request for zinc oxide, the source of the English manufacturers' supply of this chemical being shut off by the war.

A firm of London manufacturers has written asking where it can get supplies of insulating materials, including ebonite, vulcanite and vulcanized fibre.

From Italy comes a request for information as to who in America manufactures thin gutta percha tissue, the purpose in this particular instance being to cut it into narrow ribbons for mending torn papers.

RUBBER COMPANY DIVIDENDS

The Boston Woven Hose & Rubber Co., of Boston, paid on September 15 a regular quarterly dividend of 3 per cent.

The Rubber Goods Manufacturing Co. of New Jersey, paid on September 16 its sixty-second quarterly dividend of 1¾ per cent. on the preferred stock of the company and a dividend of 2 per cent. on common stock.

The Kelly-Springfield Tire Co., of New York, has declared quarterly dividends of 1½ per cent. on the 6 per cent. preferred stock of the company and of 1¾ per cent. on the 7 per cent. preferred stock—both payable October 1 to stockholders of record on September 15.

The Firestone Tire & Rubber Co., of Akron, has declared a regular quarterly dividend of 1¾ per cent. on its preferred stock and a quarterly dividend of 3 per cent., also an extra dividend of 2 per cent. on the common stock—payable October 15 to stockholders of record on October 1.

The B. F. Goodrich Co., of Akron, has declared a quarterly dividend of 1¾ per cent. on its preferred stock—payable October 1 to stockholders of record on September 18.

The Goodyear Tire & Rubber Co., of Akron, has declared a quarterly dividend of 1¾ per cent. on its preferred stock—payable October 1 to stockholders of record on September 19.

The Portage Rubber Co., of Akron, has declared its regular quarterly dividend of 1¾ per cent. on preferred stock—payable October 1 to stockholders of record on September 20.

The American Chicle Co. has declared a monthly dividend of 1 per cent. and an extra dividend of 1 per cent. on its common stock—payable October 20; also a regular quarterly dividend of 1½ per cent. on its preferred stock—payable October 1 to stockholders of record on September 25.

The Batavia Rubber Co., of Batavia, New York, has declared regular quarterly dividends of 1½ per cent. on preferred and 1 per cent. on common stock; also an extra dividend of ¾ of 1 per cent. on the latter—all payable October 1.

The Apsley Rubber Co., of Hudson, Massachusetts, has declared a semi-annual dividend of 2 per cent. on the common stock of the company, payable October 1 to stockholders of record on September 28.

REGISTRATION OF COMMERCIAL DESIGNS.

A new law for the registration of commercial designs was introduced as H. R. 11,321 in January last, and was dealt with by the House Committee on Patents during a series of hearings covering several weeks. The result of the arguments submitted was the introduction on August 4 of a revised bill (H. R. 18,223) by Congressman Oldfield, chairman of the above-named committee.

The National Design Registration League of Philadelphia has been distributing copies of the latest bill which, it believes, will meet with little, if any, opposition if its need is duly impressed upon Congress by the interests concerned.

BIG BALLOON RACE.

It is expected that there will be a big balloon race with seven competitors on October 8. The race will start from Pittsfield, Massachusetts. A valuable prize has been offered by Mr. Cortland F. Bishop, and the race will be held under the auspices of the Aero Club of America.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

GENERAL C. EDWARD MURRAY.

Military men are always interesting, and doubly so at the present time, when their achievements occupy so large a part of the world's attention.

General C. Edward Murray, treasurer of the Empire Rubber & Tire Co., of Trenton, New Jersey, and interested in a variety of other rubber enterprises, has been a military man continuously for nearly thirty years, and for the last fifteen years has been Quartermaster General of the State of New Jersey, with

the rank of Brigadier General. General Murray in fact has been extremely active in several different directions—first, as a rubber manufacturer; second, as a leader in New Jersey politics, and third, in his varied but continuous association with the militia of that state.

He was born in Lambertville in 1863, and it was quite natural that after finishing school and business college he should attach himself to the business controlled by his father, J. Howard Murray, who was a manufacturer of reclaimed rubber. This interesting event occurred in 1883, when Mr. Murray was rounding out his twentieth year, the firm name being Murray, Whitehead & Murray. Nine years later he had full charge of the business and not long after organized the Crescent Belting & Packing Co. and the Crescent Insulated Wire & Cable Co. These various companies, however, did not seem sufficient to engross his attention, so in 1902 he bought out the Empire Rubber Co., and four years later organized the Empire Tire Co.; these two companies being consolidated in 1913 and incorporated as the Empire Rubber & Tire Co.

One would imagine that these varied interests would fairly well occupy any one man's time, but, as mentioned above, General Murray became interested in military matters many years ago. He enlisted in the Seventh Regiment of New Jersey when he was twenty-two, and five years later was made paymaster of the regiment, and a few years later given the rank of Captain. In 1899 he was appointed Quartermaster General of the state, a position he has occupied ever since.

He early developed marked abilities as a political leader, and for nearly twenty years was prominent in the higher Republican circles of his state and frequently represented his district at national Republican conventions. From 1894 to 1904 he was City Clerk of Trenton. When the Progressive party was organized two years ago he became one of its conspicuous figures.

He was married in 1891 to Miss Cornell, daughter of John W. Cornell, of Trenton, and has three children, the two oldest being boys, who have already associated themselves with the Empire Rubber & Tire Co., one—J. Cornell Murray—as vice-president, the other—C. Edward Murray, Jr.—being connected with the manufacturing department.

The secret of General Murray's successful career is not difficult to fathom. In the first place, he has the greatest of all human assets, a magnetic personality. He is well disposed towards the whole world, consequently the whole world is well disposed toward him. Notwithstanding the innumerable demands upon his time, he is never too busy to see a friend or listen to a stranger. Added to this the possession of an inexhaustible energy, which enabled him to take up each task with enthusiasm; to build up to their present importance the various rubber enterprises which are under his control; to give so much service to the military organization of New Jersey, and to continue year after year such a potent factor not only in the civic life of his city but in the best political development of his state.

PERSONAL MENTION.

Theodore Hofeller, president of Theodore Hofeller & Co., dealers in old rubber at Buffalo, New York, who with his wife sailed for Europe on June 16 last with the expectation of returning about the middle of September, arrived at Boston, September 9, on the "Laconia," having left Carlsbad, Austria, soon after war was declared and visiting Munich and Lucerne en route.

W. J. Kreuder, who has succeeded Clark Swinehart as factory manager of the Vulcan Rubber Co. at Erie, Pennsylvania, was formerly superintendent of the Walpole Tire & Rubber Co. plant at Walpole, Massachusetts.

F. C. Millhoff has been promoted from the tire sales management of the Miller Rubber Co., Akron, to the position of general sales manager.

Earl E. Bain, formerly assistant secretary of the Chicago Motor Club, has been appointed manager of the Dayton Rubber Manufacturing Co., of Dayton, Ohio.

R. P. Dowse has withdrawn from the sales force of the Goodyear Tire & Rubber Co. and is now connected with the Kelly-Springfield company's selling department.

J. S. Paul, formerly connected with the Pittsburgh Rubber & Leather Co., of Pittsburgh, Pennsylvania, has joined the sales force of the Voorhees Rubber Manufacturing Co., of Jersey City, New Jersey.

Mr. J. Wrench, sales manager of the Industrial Chemical Co., under whose management the company has materially increased its business in the rubber trade in this country, returned on the Mauretania on September 3, from the English provinces, where he had been visiting friends.

Mr. J. J. Moriarty, formerly assistant superintendent of the plant of the Goodyear Tire & Rubber Co. at Akron, and later superintendent of the company's plant in Canada, has severed his connection with the Goodyear company. Mr. Moriarty has had many years' experience in the management of rubber factories in the United States and Canada.

Mr. William Fewell has been made manager of the New York City branch of the Lee Tire & Rubber Co. of Conshohocken, Pennsylvania.

Mr. Trumbull Warren, president and treasurer of the Gutta Percha & Rubber, Ltd., Toronto, was among the first to volunteer for war service in the Canadian contingent.

THE UNITED STATES TIRE CO. HAS NEW MANAGER.

Mr. J. D. Anderson, who has been identified with the manufacture and sale of tires for the last twenty years, has resigned as general sales manager of the United States Tire Co., his successor being Mr. Joseph C. Weston, the Central District manager for the company, who has lately been acting as general sales manager in Mr. Anderson's protracted absence in Europe.

Mr. Weston is also a veteran in the tire trade, having been secretary of the Morgan & Wright Co. for many years. Later, on the formation of the United States Tire Co., he became its Western District manager, with headquarters in San Francisco. From this position he was promoted to the Central District managership.

HARRY N. TOWNER.

Harry N. Towner, president of Towner & Co., of Memphis, Tennessee, died at his home in that city September 22. He was stricken with apoplexy on September 10 and owing to the fact that he had been in impaired health for the last five years he was not able to rally from the attack.

Mr. Towner was born in Connecticut April 3, 1851. His boyhood was spent in the city of Baltimore, but he was educated in the Episcopal college in Cheshire, Connecticut. While still a young man he became associated with his father in the firm of Towner, Landstreet & Co., of Baltimore, in the mill supply business. He went to Memphis in 1879 and established the firm of Towner & Co. for the wholesale distribution of all kinds of rubber goods, and when the firm was incorporated in 1905 he became its president, his son, R. Paul Towner, being secretary and treasurer.

TRADE NEWS NOTES.

The Toledo Rubber Co., which deals in rubber goods of all kinds for the vehicle, hardware, railroad, shipping, drug and clothing trades, under the brand name "Torco," has recently enlarged its offices and sales rooms at 428-30 Summit street, Toledo, Ohio. The company now occupies a modern five-story fireproof building 40 feet wide and with a total floor space of 24,000 square feet.

An analysis by chemists of the State Food Department of the chewing gums being offered the public discloses the fact that four of the brands labeled "pepsin gum" contain no pepsin whatever. The manufacturers have been notified that they must discontinue the sale of this misbranded gum or prosecution to the full extent of the law would follow.

More than 400 conductor miles of wire for distributing electric energy and light service have already been called for in specifications for the new Equitable building under construction in New York. This wire will be supplied by the Simplex Wire & Cable Co., of Boston.

The second International Safety Exposition will be held from December 12 to 19 at the Grand Central Palace, New York, when a large number of foreign and government exhibits will be shown in addition to those of industrial enterprises. Awards will be made in five grades to exhibitors in every branch of industry.

That the war in Europe has had no serious effect on the automobile trade of the United States, or on the buying capacity of the public, is shown by the fact that during August the Ford Motor Co. sold 20,638 cars. This company sold during the year to August 1, 221,888 cars, an average of about 18,500 a month.

The Loewenthal Co., 37 West Thirty-ninth street, New York, well-known operators in scrap rubber, have taken the agency of L. M. R., a popular mineralized rubber which has been on the market for many years. The reputation of this product, supplemented by the progressive methods and extensive connections of the Loewenthal Co., would seem to assure large sales of L. M. R. in the rubber trade.

The annual meeting of the Intercontinental Rubber Co. will be held in Jersey City on October 5. Proxies have been distributed by the company in the names of Edward B. Aldrich and Willard B. Smith.

The Midgeley Tire Co. is now operating its plant at Lancaster, Ohio, in the production of the Midgeley Tread tire.

Contracts have been let for the erection of a $5,700 addition to the factory of the American Rubber Reclaiming Co. at 406 East Rittenhouse street, Philadelphia.

A decrease of the capital stock of the Asbestos & Rubber Works of America, of New York, from $75,000 to $40,000, was authorized on September 23.

The Morgan & Marshall Co., which manufactures the M. & M. tire, has recently made quite a generous contribution toward the Lincoln Highway, purchasing fifty memberships in the association, at a cost of $250.

Fire Commissioner Adamson, of New York, who believes that efficiency and economy in the purchase of hose may be effected by having specifications occasionally reviewed by business experts acting with the fire department heads, is to appoint a committee for this purpose, to be composed of representatives of the Board of Fire Underwriters, the Chamber of Commerce, the Merchants' Association, the Board of Estimate and Apportionment and the Fire Department. The work of a similar committee appointed three years ago resulted in a revision of specifications which reduced the price of 2½-inch hose from $1.20 to 68 cents a foot.

A well known rubber man who has become identified with the house of Charles E. Wood is Mr. W. C. Betts, formerly of DeLong-Betts company. Mr. Betts has had a long and successful career in the rubber trade and is probably one of the best known crude rubber men in the United States. His present location will afford an excellent opportunity for him to renew his large acquaintance in the trade.

Lyman M. Bourn, for five years chief chemist and manager of the materials department of the Goodyear Tire & Rubber Co., Akron, has severed his connection with that company to accept a position as manager of the Double Fabric Tire Co., Auburn, Indiana.

WHERE RUBBER HOSE TAKES THE PLACE OF FIRE.

Taking it all in all, a piece of rubber hose can be put to more uses than almost anything else in the world. A dweller in a city apartment house with an active mind has devised a new use to which a piece of hose can be put with great benefit. Like many other unfortunates, he lives in a house having steam heat but no hot water supply, being obliged to depend for his hot water on the kitchen range, which requires time to do its work. But having a steam radiator in his bath room, he took out the piece of pipe between the radiator and the standard pipe, inserted a T with a short projecting piece of iron pipe, which contained a valve. The rest was easy. To this short piece of pipe he attached a rubber hose long enough to reach well into the tub. Then to the tub end of the hose he attached a large open wire bulb around which he wrapped a cloth. He then filled his tub, dropped the end of the hose with the bulb into the water, turned the valve in the short piece of iron pipe and let the steam into the hose, through which it rushed, passing in a quiet and orderly manner through the cloth around the bulb and soon heated the water to a comfortable temperature—thus saving time and gas bills.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

TRADE NEWS NOTES.

The selection of a date for the sale of the Walpole Tire & Rubber Co., of Walpole, Massachusetts, has been postponed until October 15, although the matter may be brought up before that time by any interested party on service of a week's notice.

It is understood that plans have been proposed—and a stockholders' meeting called for their consideration—for taking this company out of the receivers' hands and placing it under the management of new directors. Under such a reorganization the board of directors would be composed of John H. MacAlman (president), Fayette S. Curtis (first vice-president), George E. Keith (second vice-president), Charles H. Keith (treasurer), Franklin H. Downs, John S. Rand and Elisha B. Powell—all, with the exception of Mr. Powell, who is an attorney of Oswego, New York, being prominent Massachusetts business men.

An endurance test in which twenty-four motor trucks of various makes took part was recently held in California over an extremely rough 200-mile course, starting and ending at Los Angeles and leading through Riverside, Redlands and San Bernardino. The best record was made by a 1,500-pound Menominee truck, equipped with Firestone tires.

According to statistics filed in the office of the Board of Assessors for Chicopee, Massachusetts, the Fisk Rubber Co. will pay this year taxes amounting to $16,066, the third in size of the city's assessments on manufacturing or business concerns.

Owing to the war in Europe and to the fact that many members of the Society would probably neither care to attend nor be welcome in Canada at this time, the American Chemical Society decided not to hold its annual meeting at Montreal during September, as had been planned. The annual meeting for 1915 is scheduled for April 1 to 3, at New Orleans.

An inflated tire tube recently saved the life of a young woman, who, while bathing in a New Jersey lake, got in beyond her depth and, being unable to swim, had sunk for the second time when her companion pushed the inflated tube out within her reach and so assisted her to safety.

The Carriage Builders' National Association is holding its forty-second annual convention at Atlantic City, from September 26 to October 2. Among those taking part in the exhibition at the Million-Dollar Pier, held in connection with this convention, are the Firestone, Goodyear and Kelly-Springfield companies, exhibiting tires, and the F. S. Carr Co., the L. C. Chase Co. and the Fairfield Rubber Co. showing artificial leather.

During the year 1912 there were 20,248,326 miles of wire in use in the telephone lines of the United States—a gain of 15,347,875 miles over the quantity in use ten years ago.

The desirability of wearing rubber gloves while engaged in certain electrical work is very strongly impressed upon workmen in rules for men engaged in electrical work recently submitted at a convention of southern electrical associations; while those operating switchboards are just as strongly urged to always stand on a rubber mat.

A canvass of the automobile industry by the National Automobile Chamber of Commerce shows a quick recovery from the effects of the war, shipments of 6,870 carloads having been made during August; and it is believed that the fall trade will very nearly reach previous expectations.

Protests have been entered by various ambassadors against the export of American automobiles to the warring nations, and there seems to be some intention of classing such shipments as "munitions of war and supplies."

Statistics show about one automobile for every two miles of country road in the United States.

DATES OF THE AUTOMOBILE SHOWS.

The Electrical Vehicle Show will be held in the Grand Central Palace, New York, from October 7 to 17.

The National Automobile Show, promoted by the National Automobile Chamber of Commerce, will be held in the Grand Central Palace, New York, January 2 to 9.

The National Automobile Chamber of Commerce will also promote a National Automobile Show to be held in the Coliseum and First Regiment Armory, Chicago, January 23 to 30. The shows under the auspices of the National Chamber are to be invitation affairs, only such motor car and accessory manufacturers as are members of the Chamber, and to the number that can be properly cared for, being invited to exhibit.

The Automobile Dealers' Association of Pittsburgh is promoting an automobile show to be held October 17 to 24.

At San Francisco the Panama-Pacific Exposition Co. is promoting the following races, to be held at the exposition grounds: Vanderbilt Cup Race, February 22; Grand Prize Race, March 7; Panama Pacific Cup Race, March 14.

KEATON TAKEN OVER BY THE COMBINATION.

The Combination Rubber Manufacturing Co., with factory and general offices at Bloomfield, New Jersey, and a tire department branch at 1790 Broadway, New York, has taken over and will continue the business of The Keaton Tire & Rubber Co., which manufactured special brand tires and tubes for a number of the large tire jobbing concerns. Mr. H. A. Forbes, former general manager of the Keaton company, is manager, and Mr. Frank C. Braden, sales manager of the tire department of the new concern.

A FAMILY HEIRLOOM CARRIED IN A RUBBER HEEL.

A lucky turn of events in which a rubber heel and an honest bootblack each played a part recently restored to a certain fortunate young woman a jewel of much beauty and great value, highly prized as an heirloom, which she had lost en route from Europe to New York on board the "Imperator." A thorough search failed to disclose the whereabouts of the lost jewel—a large pigeon-blood ruby—and it was not until after arrival in New York, when a bootblack of the Hotel Astor was polishing the shoes of the young woman's father, that the discovery was made. The ruby had become lodged in the rubber heel, in a recess formed to receive a nail for attaching the heel to the shoe.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

A firm in Spain desires to represent American houses dealing in crude and manufactured rubber of all kinds. Correspondence and catalogs should be in French and Spanish and metric units should be used; prices to be in gold pesetas (peseta equals 19.3 cents) f. o. b. any American seaport having direct connections. Report No. 13,595.

A business man in Oceania would be glad to receive catalogs and price lists from American manufacturers of surgical elastic, hosiery, abdominal belts, rubber gloves, etc. Report No. 13,678.

A large engineering company in Great Britain desires to correspond with manufacturers in a position to quote favorably on armored cables for high and low tension service. Report No. 13,758.

A dealer in Great Britain wishes correspondence with American manufacturers of ducks, drills, sheetings, etc., with a view to securing representation for that country. Report No. 13,779.

A leading wholesale chemist and druggists' supply house in Great Britain is reported in the market for a number of American sundries—vulcanite goods, douche fittings, syringes, surgical rubber goods, atomizers, etc. Report No. 13,761.

An import agent in Europe wishes to purchase, for cash, rubber shoes, etc. Correspondence may be in either English or Norwegian. Report No. 13,805.

TRADE NEWS NOTES.

The Miller Rubber Co., of Akron, which recently issued $500,000 of new first preferred stock, has purchased land adjoining its present holdings with a view to further extension of its manufacturing facilities.

The Blodgett Rubber Co., a $500,000 corporation of Warren, Ohio, has completed arrangements for the removal of its tire manufacturing plant to St. Joseph, Michigan, the Development company of that city having agreed to furnish a factory site and building which at the end of five years should under certain conditions become the property of the Blodgett company.

A factory for the manufacture of rainproof cloth is soon to be established at Fulton, Kentucky, by Harrison Brothers, of Union City, Tennessee.

The American Chicle Co. has issued $2,000,000 of additional stock and acquired the assets of the Sen Sen Chiclet Co., of Maine.

The capital stock of the Syracuse Rubber Co., of Syracuse, New York, has been reduced from $25,000 to $500, and a similar reduction has been made in the capital of the Rochester Rubber Co., Rochester.

The requirements of the fire department of Philadelphia necessitate keeping 126,000 feet of hose in active service, there being in the city 83 fire stations, each of which uses from twenty to twenty-five lengths of 50 feet.

A new form of polo has been introduced which is sure to gain favor among the tire manufacturers. The players are mounted on bicycles, the front wheels of which take the place of mallets in driving the ball.

A tire and accessory manufacturing company which will employ 60 men at the start has been incorporated in Ohio with a capital stock of $350,000, under the name of The Toledo-Ford Tire Co. Plans under consideration call for the erection at Toledo of a brick and steel plant 60 x 250 feet in area, with equipment for a production of about 200 tires a day at the start. The incorporators are: R. F. Teall, C. E. Taggart, William Dunbar, L. P. Eichenberg and E. F. Felton. It is expected that the new plant will be ready for operation soon after January 1.

The Converse Rubber Shoe Co., of Malden, Massachusetts, has just been awarded a contract for furnishing the United States Navy Department with 1,200 pairs of Arctic shoes, at $1.81 per pair.

Plans are under way for the erection of a $50,000 brick plant, 80 x 250 feet, one story high, at New Brunswick, New Jersey, for the Endurance Tire & Rubber Co., of 1789 Broadway, New York.

The Whitall-Tatum Co. is adding to its plant at Millville, New Jersey, the cost of the new addition being estimated at $30,000.

A rumor that the Hartford Rubber Works, of Hartford, Connecticut, would remove to Detroit, Michigan, has been denied by Charles B. Whittelsey, secretary of the company and factory manager.

The Stoddard Rubber Co., of Worcester and Millbury, Massachusetts, recently incorporated with a capital stock of $60,000, will manufacture and deal in rubber, rubber tires, etc.

The H. W. Johns-Manville Co., of New York, has purchased the plant of The United Indurated Fibre Co., at Lockport, New York.

The Faultless Rubber Co., of Ashland, Ohio, is erecting a factory building 80 x 120 feet, three stories high.

At the works of the I. B. Kleinert Rubber Co., College Point, New York, several departments have been closed as a result of conditions caused by the war.

NEW INCORPORATIONS.

Accident-Proof Tire Co., August 22, 1914; under the laws of New York; authorized capital, $250,000. Incorporators: Kerr F. Albertson, 54 Morningside Drive, New York City; James O. Hodge, 878 East Twenty-third street, and Carl W. Stuart, Oriental Hotel—both of Brooklyn, N. Y. To manufacture and deal in Cumberland tire filler and other auto accessories.

Brooklyn Tire Co., Inc., September 15, 1914; under the laws of New York; authorized capital, $10,000. Incorporators: Willard J. Woodcock, Frank W. Woodcock and Beatrice Woodcock—all of 102 Gates avenue, Brooklyn, N. Y. Tires and rubber goods.

Crow Gum Co., August 6, 1914; under the laws of Delaware; authorized capital, $100,000. Incorporators: F. D. Buck, George W. Dillman and M. L. Horty—all of Wilmington, Del. To acquire the business carried on by the Crow Gum Co., of Memphis, Tenn.

Hester Tire & Rubber Co., The, September 9, 1914; under the laws of Delaware; authorized capital, $300,000. Incorporators: B. H. Friel, L. A. Browhill and G. M. Purcell—all of Wilmington, Del. To deal and trade in all kinds of rubber, etc.

Manufacturers' Rubber & Supply Co., The, August 20, 1914; under the laws of Illinois; authorized capital, $10,000. Incorporators: W. E. Anderson, W. R. Anderson and N. Johnson. To manufacture, buy and sell automobile appliances, accessories and rubber goods of every description.

Parr Auto Shoe Co., September 10, 1914; under the laws of Indiana; authorized capital, $10,000. Incorporators: W. A. Parr, G. E. Parr, William Featheringill and S. W. Featheringill—all of Franklin, Ind. To manufacture anti-skid or emergency shoes and other accessories for automobiles.

Positive Puncture Plug Co., September 4, 1914; under the laws of Illinois; authorized capital, $15,000. Incorporators: J. H. Nowlin, F. C. Corbitt and O. W. Pellage. To manufacture, sell and deal in automobile supplies, specialties, accessories, etc., and to carry on any trade or business incidental thereto or connected therewith.

Russian-American Rubber Tire Works, Inc., September 8, 1914; under the laws of New York; authorized capital, $100,000. Incorporators: Rose Miller, 477 Stone avenue; Isidore Kelner and Sruel Billik—both of 1549 Pitkin avenue—all in Brooklyn, N. Y.

Stoddard Rubber Co., Inc., September 4, 1914; under the laws of Massachusetts; authorized capital, $60,000. Incorporators: Charles H. Stoddard, F. Madge Stoddard and Samuel L. Cowitz—all of Worcester. To buy, sell, manufacture and deal in crude rubber or rubber compounds and rubber tires for vehicles.

Washington Heights Auto Tire Works, Inc., September 21, 1914; under the laws of New York; authorized capital, $5,000. Incorporators: William J. Buckley and Edward Buckley—both of 1748 Amsterdam avenue—and William F. Keyes, 526 West 145th street—all in New York, N. Y.

VACUUM-CLEANING THE HORSE.

The modern housekeeper would be at a loss how to proceed in keeping her home immaculate if she didn't have some sort of a vacuum cleaner; and what is good for the house is evidently good for the horse, for a vacuum cleaning apparatus is being used by some of the New York City departments for the grooming of the municipal steeds. The horse is first curried vigorously, so as to loosen up the dust and dirt and germs, and then the cleaner is applied and all loose and unnecessary particles are carried off into the dust bag—a great improvement on the old system of getting the dust off of one horse to simply have it settle on the next—to say nothing of what went into the lungs of the groom.

New Rubber Goods in the Market.

THE SEASON'S NEWEST COATS AND HATS.

The raincoats here illustrated represent a decided variation in style from anything previously noted in these columns. The first two models are in cape effect, the young woman's coat being of worsted, in a variety of color combinations, with a coating of rubber on the inside and cut with cape effect sleeves—which may be fastened close to the wrist by means of a glove clasp—joined to the body of the coat in raglan style. The girl's rubberized cape coat is made with convertible collar and slashed pockets.

The London slip-on model is made in men's and youth's sizes, of double texture gabardine, with raglan or plain sleeves and with patch pockets.

The girls' coats represent such materials as Donegal Scotch tweed with cravenetted silk-lined yoke and sleeves; rubberized poplin, and Priestley's English cravanetted mixed tweed. Both slit and patch pockets are shown, and plain and belted designs.

Each reproduction shows the waterproof hat appropriate to the style of coat worn.

RUBBER CEMENT CLEANER.

In the process of manufacture of canvas and leather shoes of white or delicate colors the uppers are usually covered with paper or cloth to prevent soiling. But in spite of this there is bound to be more or less dirt or stain in the handling, and frequently the cement used in attaching the soles daubs the upper. The general practice in factories is to use a cement ball, which is practically a piece of sponge rubber which in using assumes a spherical shape, but which in handling must take more or less dirt from the operator's fingers, while its shape prevents its use in crevices, etc. To take the place of this ball a cleaner has been devised which has somewhat the form of a buffing wheel or emery wheel. There is a tubular core around which the sponge rubber is arranged. This allows the cleaner to be grasped by the thumb and fingers, and in use the rubber wears equally, thus maintaining the wheel-shape. While it is not so stated by the manufacturers, the cleaner is evidently capable of being placed on a revolving shaft or spindle for quick work. [United Shoe Machinery Co., Boston.]

A RUBBER RELIEVER OF BUNIONS.

Doctor Scholl—presumably a doctor of chiropody—has prepared a small article for the relief of those who are possessed of bunions. It consists of a small, soft, pliable piece of rubber that fits in between the great and second toes and is kept in place by thin rubber head and foot pieces. It looks, as a matter of fact, something like an enlarged collar button, with two hollow spaces running through its length. While this is so pliable as not to be uncomfortable, its effect is to force the great toe out into its normal position and thus relieve and in time cure the bunion.

Another invention of the Doctor's is a corn pad, also made of soft, pliable rubber, in various sizes, intended to alleviate the sufferings of those afflicted with corns on the toes, tender joints or callouses on the soles. [Scholl Manufacturing Co., 337 Broadway, New York City.]

GOGGLES WITH A SOFT RUBBER RIM.

A Chicago house has recently put on the market an eye protector called the "Dimmer Goggle," intended particularly for the motorcyclist. These are finished with a soft rubber rim which enables the protector to press closely against the face without creating any disagreeable feeling. These goggles are made of celluloid in five different colors—clear, amber, smoke, green and blue; and those made of amber color have an extra green strip about three-quarters of an inch wide running across the top, which makes it possible for the cyclist, by lowering his head a trifle, to face the setting sun or to ride immediately under a strong electric light without having his eyes at all affected. [Chicago Eye Shield Co., 128 South Clinton street, Chicago.]

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

SIX NEW TENNIS SHOES.

When tennis shoes were worn almost exclusively in playing tennis and other sports, or at least were confined in their use very largely to summer outings, they were made altogether without heels, this form being best adapted for wear in outdoor games. But recently these light rubber-soled shoes have become so popular for general wear that there has arisen a demand for similar shoes with heels, and in consequence the new tennis price list issued by the United States Rubber Co. shows six new shoes which have not appeared in any of their previous publications, five of these shoes having heels. The accompanying cuts show their general appearance.

COLONIAL PUMP.

EMMY LOU PUMP.

WOMEN'S PARADE PUMP.

WEEK END OXFORD.

QUARTER DECK BAL.

REGATTA OXFORD.

All of these shoes have rubber soles and heels, with duck uppers. The "Quarter Deck" and the "Colonial Pump" are made of buff or pure white palmetto duck with lining to match. The "Regatta" and "Week End Oxford" are made of white or brown duck, the former having a white rubber sole, the latter a gray rubber sole. The "Parade Pump" is made in black or white duck, with rubber soles and heels to match; while the "Emmy Lou Pump," evidently intended for young girls and children, is made of white duck with white soles or golden glow duck with red soles. As these duck shoes with rubber soles and heels are so much lighter and more comfortable—to say nothing of being so much less expensive—than leather shoes, they are likely in the future to be very extensively worn through the summer months.

PNEUMATIC TIRES FOR THE BABY'S HEAD.

A humane woman of Philadelphia, the city of brotherly love—including the extremely young brothers—has thought out a simple apparatus for keeping infants from bumping their heads on the floor or the wall. It consists of a pneumatic tube which goes around the forehead and the back of the head, with two similar tubes crossing over the top. This pneumatic harness is fastened on the head just like a hat, with a strap going under the chin. Equipped with this resilient accoutrement, the youngster can knock his head in any direction and extract only amusement from the process. It is probable that for sick children, who are very liable to tumble on slight provocation, this would prove a useful device, but for the ordinary youngster a certain number of bumps are a good thing, serving as a valuable preparation for the bumps of later life.

EBONITE MOLDING.

Ebonite molding for automobile bodies is now being turned out in a variety of designs. This molding, while more especially suitable for black finished vehicles and considerably more expensive than wood, retains its finish without much care and is said to hold its shape, being easily bent to almost any curve.

AN OPEN WORK PENHOLDER.

A new penholder has recently come on the market, made of hard rubber, differing from hard rubber penholders previously offered for sale in being hollow and having two long slits on opposite sides running half the length of the holder and two sets of short cross slits opposite each other between the two long openings. This slitted open effect makes the penholder light and somewhat elastic, so as not to tire the fingers even where one grasps his pen with unnecessary energy. [Tower Manufacturing & Novelty Co., New York.]

RUBBER COVERED TEMPLES FOR GLASSES.

A good many people who wear spectacles chronically have experienced the disagreeable sensation of having the temples (the name given to the wires that go over the ears) cut into the flesh, or at least chafe it. This is particularly likely to happen in hot weather, and is especially liable to occur where people are engaged in active exercise. To avoid this difficulty the F. W. King Optical Co., of Cleveland, Ohio, manufacturers of sportsmen's glasses, make a great many glasses in which a small, delicate rubber tube is pushed over the temples so that the wire does not come in contact with the ear or the head. This rubber covering not only tends to prevent chafing but holds the glasses firmly in place, a condition much to be desired by men who are in pursuit of game and therefore need the most accurate sight possible.

VACUUM CLEANERS FOR PULLMAN PORTERS.

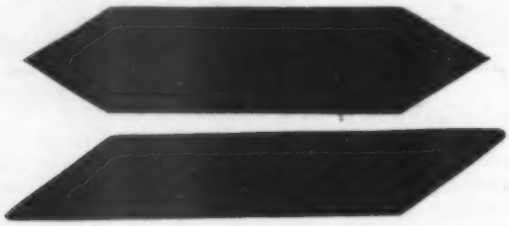
That prophet of uplift and seer of visions, Elbert Hubbard, recently contributed to the magazine sections, which form a very readable part of many of the metropolitan dailies, an article on the unsanitary phases of the Pullman car, and he called particular attention to the industrious porter, who, just before the arrival of the train at its destination, grabs the helpless passenger and with his whisk broom removes the dust from his clothing on to that of his neighbors, and then, after receiving his tip, proceeds to remove the dust from the neighbors back on to the helpless traveler. Mr. Hubbard suggests, in place of this whisk broom, that simply moves the dust from one place to another to move it back again, that the porter be equipped with a vacuum cleaner—supplied of course with the proper length of rubber tubing—with which he can go over the person of the traveler, removing the dust in such a way that it would fly out into the outer air. This is a most excellent suggestion, and if the suction were made strong enough so that, after the cleaner had removed all the dust from the traveler's clothing, it would seize upon the porter and carry him also out into the outer air, its popularity would know no bounds.

THE PUMP WITHOUT A GAP.

One defective feature has persistently appeared in every pump model that has so far been presented—it spreads at the arch when the foot is bent. But here is a model for which the claim is made that "no matter how the wearer bends her foot, this pump will never gap at the sides, either walking or standing." This being the case, one problem of the manufacturers is solved, for the pump is extremely atractive in appearance, the part that fits so closely around the foot being made of an entirely new elastic shoe cloth woven especially for pumps. It is made in black, white, bronze, pink and blue, in plain or brocade finish. [Hub Gore Makers, Boston.]

ERASER WITH PERPETUAL POINTS.

Where one wishes to erase a very considerable surface it makes no particular difference whether an eraser has a sharp point or a dull point; but it usually happens that the erasure to be made consists only of a small line, and it is quite desirable under these conditions to have an eraser with a sharp point. To meet this situation a Philadelphia company has put on the



market an eraser called the "Dandy" which, as is shown in the accompanying cuts, has a number of open parallel slits. As a result of this construction it is easy when the points or corners are worn down to remove a section of the eraser with a knife and start on the next section, with a new set of sharp pointed corners. These erasers are made in two shapes, one with rectangular corners and the other with diamond shaped ends. They are made also both for pencil use and for pen use. [John S. Rapson, 51 North Sixth street, Philadelphia.]

A NEW DIXON ERASER.

To the wide variety of erasers on the market another style has lately been added. This is Dixon's 1095 red and gray disc eraser, a full size cut of which appears herewith. The section composed of red rubber is intended for pencil marks and the gray for ink and typewriter erasures. [Joseph Dixon Crucible Co., Jersey City, New Jersey.]

TWO NEW DRESS SHIELDS.

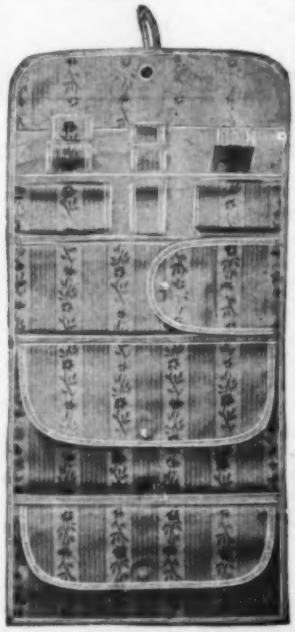
One is made of pale pink silk, rubber proofed on one side, with pinked edges. The flesh tint and gossamer weight make it appropriate for evening or full dress gowns of diaphanous materials. It is also suitable for blouses of sheer material.

The other is of rubber-proofed silk, covered with flesh tint silk. The edges are finished with buttonhole stitching in the same shade. This is probably the finest and newest shield made. It is intended for high class gowns and fastidious dressers.

THE OVERNIGHT TOILET CASE.

A very convenient and necessary traveling case for a week-end visit, it is designed and made up to meet the requirements of the most fastidious. The case is rubber lined throughout and has a limited number of pockets to accommodate the necessary toilet articles. As the name indicates, it only provides space for such articles as a short sojourn would require. In design it resembles a novel shaped hand bag provided with a convenient carrying handle. The case opens at the bottom and when in use it is spread out upon the dresser or some convenient table. It is readily closed when the case is lifted by the handle, thus folding the halves together, which are held by several glove fasteners provided for that purpose. It comes in cretonne, mercerized gingham, plain and fancy silks.

The other cut shows a rubber-lined tourist case of entirely new design that will appeal to the traveler. It is provided with an assortment of pockets of various shapes and sizes to accommodate the many articles used in the toilet. Considerable thought has been given to this feature in order to provide convenient places for the articles necessary when traveling. When in use the case is suspended and open, thus affording easy access to each toilet article. The case can be folded up and tied, when so desired, by a band provided for that purpose. It makes a neat and attractive receptacle for toilet accessories and occupies but little space in the traveling bag. It is made of materials similar to those employed in the overnight case. [Stern Specialty Co., 40-42 East Twenty-Second street, New York.]



RUBBER BANDS TO SAVE THE FINGERS.

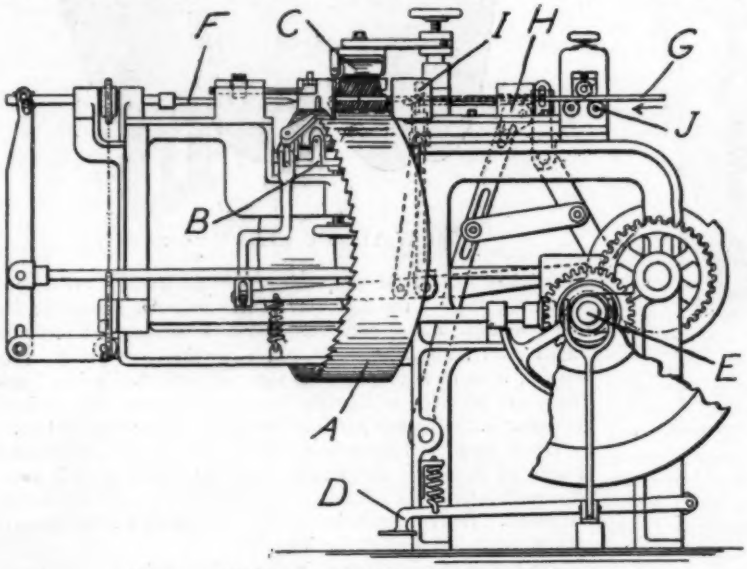
It falls to the lot of a good many people doing clerical work in offices to be obliged to turn over a mass of letters or other documents in search of some particular paper. To do this one naturally lifts up the corner of the sheet with his finger, and in order that the finger may take hold of the paper it is generally customary to have a wet sponge at hand on which the finger can be frequently moistened. But this process if long continued is liable to result in a rather disagreeable sensation. To obviate this some inventive genius has devised a little corrugated rubber band which goes over the end of the finger, being loosened or tightened by a small buckle, and which has enough friction in its rubber surface to catch up the loose sheets of paper. [Tower Manufacturing & Novelty Co., New York.]

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

New Machines and Appliances.

PLACING CROSS WIRES IN TIRES.

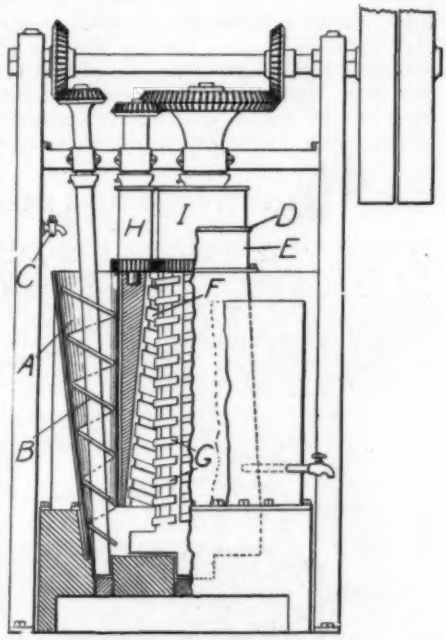
THE accompanying drawing shows a machine for inserting the cross wires in the bases of solid tires. The machine performs this operation on the finished tire of annular form, after vulcanizing. The tire is placed on a drum *A* having a ratchet in one edge so that it can be advanced step by step. This drum is mounted on a turn table *B* so that the tire can be turned to permit of inserting the wires at any angle to the base of the tire. With the tire in position and held down by a roller *C*, the treadle *D* is pushed down by the operator, engaging a clutch on the driving shaft *E* and causing a drill *F* to advance and bore a hole through the tire. When the drill is withdrawn, the wire *G* is gripped by a cam *H* and the end pushed forward into the hole in the tire. The wire is then cut off the proper length by a shear *I*, and the end projecting from the tire is pushed into place by a hammer automatically operated. The wire is straightened as it is drawn from the supply wheel by being passed between rollers *J*. [Pat. No. 1,110,800, Sept. 15, 1914. C. Kuentzel, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio.]



Kuentzel's Machine for Inserting Cross Wires.

NORZAGARAY'S EXTRACTOR AND WASHER.

ANOTHER interesting machine just patented in this country is an extracting and washing machine designed by Norzagaray and illustrated by the accompanying drawing. The machine is designed for cleansing crude rubber, as well as for kneading and rolling it into sheets. The rubber is fed continuously into the top of a conical tube *A* and is forced down by the conveyor screw *B* until it passes out at the lower end of the tube. Hot water is kept running over the rubber from a tap *C* and from a perforated pipe *D* at the top of the tank *E*. Formed on the inside of this tank are spiral threads *F*, which engage spiral ribs *G* on a cylinder rotating in the tank. The rubber emerging from the lower end of the tube *A* is forced upward by these spiral ribs and thoroughly masticated while the hot water is continuously running over it. The mass of rubber emerges at the top of the tank and is passed between vertical rollers *H* and *I*, where it is sheeted, and stamped with any design or wording which may be engraved on the smaller roller. [Pat. No. 1,110,340, September 15, 1914. L. Norzagaray, assignor to the Economic Washing Machine Co., London, England.]



Norzagaray's Washing Machine.

EXTRACTS FROM RECENT PATENTS.

The following are brief extracts from the specifications of other interesting United States patents recently granted.

PULVERIZER FOR SCRAP RUBBER.

No. 1,102,789, July 7, 1914. Joseph Ogden, Manchester, England. A machine for grinding or pulverizing scrap rubber. The rubber is fed into a cylindrical hopper and comes in contact with a rapidly revolving disc having an abrasive surface or sharp cutting edges in the form of spirals.

METALLIC STOCK SHELL.

No. 1,104,296, July 21, 1914. William F. Gammeter, Cadiz, Ohio. Metallic stock shell for winding up sheeted rubber or coated fabric as it comes from the calender. This roll is entirely of metal and is designed to facilitate cooling. It is an improvement on patent No. 1,003,593 of 1911.

LAST MAKING MACHINE.

No. 1,104,040, July 21, 1914. E. A. Eastman, assignor to the Crawford McGregor & Canby Co., Dayton, Ohio. Automatic machine for turning shoe lasts. It is interesting to note that, although the patent just granted covers minor improvements, the original of this machine was illustrated and described in The India Rubber World of May, 1904.

JAR RING AND GASKET LATHE.

No. 1,107,404, August 18, 1914. F. Brelle, Sr., and F. Brelle, Jr., Ferndale, California. A machine for cutting rubber gaskets or jar rings, wherein the rubber tube is placed on a revolving spindle and the cutter is automatically fed forward and advanced toward the tube. The knife may be adapted for cutting rings with a curvature in cross-section of almost 90 degrees.

DENTAL VULCANIZER.

No. 1,107,441, August 18, 1914. N. W. Olson, Galesburg, Illinois. A vulcanizer for curing dental goods, opened and

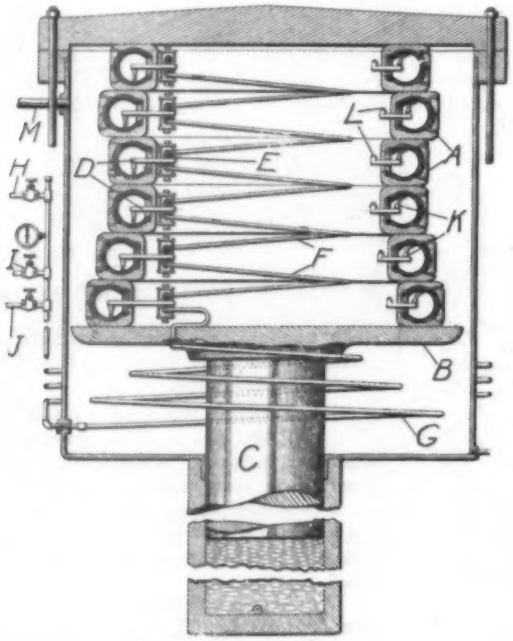
closed by a steam cylinder whose piston has an extension for operating a rheostat, for controlling an electric coil which supplies heat for vulcanization.

IMPREGNATING BRAIDED HOSE.

No. 1,110,671, September 15, 1914. Henry Z. Cobb, Winchester, Massachusetts. An apparatus for passing the thread through a rubber solution to impregnate it before being woven into hose. The woven hose subsequently passes through a die to remove the surplus material. This patent constitutes an improvement on Cobb's patent No. 1,002,644 of 1911.

TIRE VULCANIZING PRESS.

AMONG the recent inventions in the field of rubber manufacturing machines is the tire vulcanizing press illustrated herewith. This vulcanizer is very simple both in construction and operation. The tires are first built up and placed in molds *A*, which are laid one above the other on the table *B* mounted on the hydraulic ram *C*. Each mold has a pipe *D* running from



Dees' Tire Vulcanizer.

the interior of the tire to a valve *E*. These valves are all connected by flexible pipes *F* communicating with the outside of the vulcanizer through a flexible pipe *G*, having three valves, *H*, *I* and *J*. Each mold also has a tube *K* with a valve *L*.

When the molds are in place and compressed by raising the hydraulic plunger *C*, the valve *H* is opened and cold water is let into the tires until they are filled, when it runs out through the tubes *K*, closing the valves *L*. The valve *H* is then closed and steam is admitted to the vulcanizer through the pipe *M*. As the water inside the tires becomes warm by the heating of the molds, it expands and exerts an outward pressure on the tires. At the proper time the valve *J* is opened and the pressure of the steam opens the valves *L*, forcing the water out of the tires and filling them with steam. The valve *J* is then closed and the steam valve *I* opened, producing a pressure in the tire greater than that in the surrounding vulcanizer. This pressure is maintained until the curing process is complete. The principal advantage claimed for this apparatus is in the pressure exerted on the interior of the tire by gradually raising the temperature of the water. [Pat. No. 109,048, Sept. 1, 1914, M. A. Dees, St. Louis, Missouri.]

A BOLTLESS QUICK-OPENING VULCANIZER.

THE new boltless quick-opening vulcanizer head, manufactured by the Williams Foundry & Machine Co., Akron, Ohio, and illustrated herewith, presents several novel improvements.

The cast-steel shell ring and door have each a series of projecting lugs. The door is turned, by means of an iron bar in-

The Williams Boltless Vulcanizer.

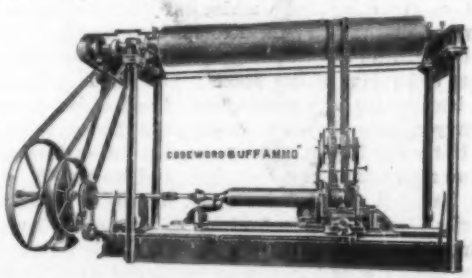
serted into one of the projections, so that its lugs are forced under the lugs of the head-ring. This makes it impossible for the door to be forced outward. The door rotates on a trunnion at its center, which is a part of the cast-steel door hinge, permitting it to be swung open like any ordinary vulcanizer head. Stops are provided so that the operator is always sure to have the door in the proper position before the steam is turned on.

When steam is turned into the vulcanizer and the pressure raised to from one to three pounds, the wedge-shaped, automatic rubber packing effectually seals the joint against the escape of steam. There is not a bolt or nut to tighten, and the greater the pressure, the tighter the joint.

The points of advantage claimed for this head are a great saving of time, ease of operation and safety. The head is adapted to be applied to the old bolted type of vulcanizing cylinder.

BERTRAMS' ROLL BUFFING MACHINE.

THE accompanying illustration shows a machine designed for buffing and polishing calender and mill rolls, or any other rolls which require a smooth, even finish. On the heavy bed



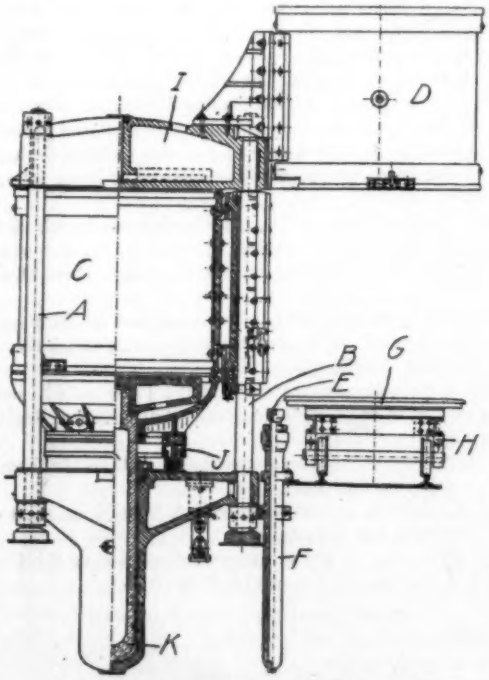
of the machine are V-shaped slides, over which travels the carriage carrying the buffs. The buffs are driven by belts from a

long overhead drum. The roll to be ground or buffed is mounted in heavy bearing brackets above the center line of the bed, and revolves in its own journals. Grinding wheels are arranged on both sides of the roll in the carriage, and are traversed in both directions along the face of the roll, while the latter is revolved at a suitable speed. The overhead drum extends the full length of the machine, and is longer than the longest roll liable to require grinding. The roll is revolved from the driving shaft through two universal joints, and provision is made to compensate for the deflection of the roll so that a perfectly true surface may be obtained. [Bertrams Limited, Sciennes, Edinburgh, Scotland.]

A QUICK-ACTING VULCANIZING PRESS.

THE accompanying drawing shows a somewhat unusual form of vulcanizing press, designed by Paul Beer, of Berlin, Germany. Instead of the usual four steel columns, this press has two columns *A*, at the rear, and a single column *B*, at the front. It has two cylinders *C* and *D*, each of which is provided with gibs arranged to slide vertically on a guide attached to the column *B*. The cylinders may be swung around this column as a pivot, and may be raised or lowered by means of a piston *E* operating in a hydraulic cylinder *F*.

The articles to be vulcanized are placed in molds stacked upon a plate *G* on a truck *H*. The truck is then run under the cylinder *D*, which is open at the bottom and raised as shown. This cylinder is lowered over the molds by means of the piston *E*, and the plate *G* is clamped to it. The cylinder *C* in the press is relieved from steam and hydraulic pressure, and both cylinders are then swung around the column *B* until cylinder *D* is brought into position in the press, and cylinder *C* is directly over the truck. The molds containing the vulcanized goods



Beer's Quick Acting Vulcanizing Press.

are then released by unclamping the plate *G*, and the empty cylinder is then raised by means of the piston *E*. While this is being done the press is operated to compress the molds, and to press the cylinder against the head *I* of the press. In order to press the molds against the head, only a short movement is necessary. For this, a circular, hydraulic ram *J* is employed. It has two concentric movable rings which have wedge-shaped protections arranged so that the piston may be locked in its raised position. This circular, hydraulic press operates independently of the main ram *K*.

The advantage claimed for this type of press is that it can be charged and emptied simultaneously, thus reducing labor and economizing time. Also the ram and cylinder of the main press can be made shorter than usual, since the press operates only to compress the molds.

CONTRABAND OF WAR.

According to National Chamber of Commerce Bulletins issued in August Germany had agreed to follow the decision of the London Conference of 1909 as to the articles absolutely and conditionally contraband. Those articles conditionally contraband are liable to capture only if shown to be destined for armed forces or for government departments. The English regulations are practically the same as those of Germany, except that the German list includes aeroplanes, etc., in the conditionally contraband list while England places them in the absolutely contraband section.

Extract from List of London Conference 1909.

Absolutely Contraband.—Distinctively military clothing and equipment. Articles of camp equipment and their distinctive component parts. Aeroplanes, airships, balloons and air craft of all kinds and their distinctive component parts, together with accessories and articles recognizable as intended for use in connection with balloons and air craft.

Conditionally Contraband.—Clothing, fabrics for clothing and boots and shoes, suitable for use in war; vehicles of all kinds, available for use in war and their component parts; materials for telegraphs, wireless telegraphs and telephones.

FRENCH MOTOR CARS AND THE WAR.

According to advices from France, the subsidy scheme which has been carefully developed during the last six years is now proving of benefit to the nation. Uniformity of speed, size, carrying capacity, weight, tire and wheel dimensions have been the principal points kept in view.

There are said to be 70,000 motors with the French troops, 15,000 of which represent subsidized motor trucks, which went automatically into the service on the declaration of war and were immediately moved forward to the German frontier.

Besides calling for the subsidized vehicles, the army authorities have made large purchases of trucks of all kinds. There is in fact a shortage of this class of vehicle in France. The French Government assumed, on August 1, the control of the De Dion-Bouton plant, the workmen all donning soldiers' uniforms.

HOW TO GET GERMAN GOODS TO AMERICA.

It is pointed out in the German press that there are perhaps two possibilities of sending goods to America, via Holland (Rotterdam) and via Denmark (Copenhagen). As soon as normal conditions are to some extent restored, and negotiations with the Dutch steam lines are formally concluded, goods will be sent to the Dutch frontier (Bentheim), where they will be taken care of by Dutch shipping agents for shipment via Rotterdam to America. German insurance companies decline the war risk, but it is suggested that Dutch underwriters might undertake it.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE RUBBER TRADE AND THE WAR.

AT the request of the editor, whose unexpected visit to England on the abandonment of his trip to Java has been a source of pleasure to his many friends on this side, I am devoting my space this month to comments on the effects resulting from the European war in which we are engaged. Special matters may conveniently be grouped under their respective headings and the first paragraphs will contain brief references to generalities not elsewhere receiving more detailed notice.

It goes without saying that the trade, more especially the export trade, is considerably disarranged, but in this respect we are by no means in so bad a position as is the case with our enemies and allies. The universal military service existent on the continent has meant many factories being largely depleted of their workers, including the technical and clerical staffs. In Great Britain numbers of men and a limited number of officers have been called from rubber works by the mobilization of the territorial forces, but in no case has the number of men withdrawn from any particular plant led to the stoppage of the works.

The position of affairs among rubber manufacturers generally is that while some firms are working practically round the clock to complete government orders, others, who are not in the list of government contractors, either because they do not make the particular classes of goods required or because of their limited size and status, are feeling the pinch of bad trade very severely. The government orders given out comprise ground sheets to form the tent floor, motor tires for transport wagons and ambulances, bed sheeting, elastic bandages, pure rubber sheet, etc., for hospital use, as well as larger orders for goods on the admiralty list, some of which are supplied to the government dock yards direct and others to the private shipbuilding yards. The goods mentioned above by no means include all which might be enumerated but they will suffice to show the trend of present activity in our large works.

As a set-off to this loss of export trade, we have the fact of short time being general in the cotton trade and in engineering establishments not supplying goods required in war. Again some collieries have closed down temporarily and others are on short time, owing to a decreased demand for coal for industrial purposes, as well as to a shortage of pit props, the arrival of which from Scandinavia has been delayed. The waterproof garment branch seems to be badly hit, houses in the trade working only two or three days a week; though the depression here cannot be attributed entirely to the war as it has been chronic for some time. Even now when certain branches of proofing should be busy from war demands there is great difficulty in getting the particular textile wanted, as owing to bad trade generally many textile mills shut down for a time some weeks ago, and they are not inclined to re-start for transitory orders of what they consider inconsiderable magnitude.

The rubber heel trade of the baser sort has been very decidedly affected, as so much of the business was done with the Continent. I am doubtful if there are any rubber goods, except perhaps rubber sponges, coming from the Continent which cannot be supplied at home. In the matter of hollow balls there is a convention regulating the price. It is understood that contracts with Germany and Austria are void, though opinion on the point is by no means unanimous. Conventions as to prices, however, are a different thing and will probably continue in force. Anyhow, there is no reason why British makers should seek to raise the price, as rubber is plentiful enough, though one must not overlook possible difficulties in the case of certain chemicals.

A somewhat important article coming from Germany and Austria is the high temperature sheet packing, first produced by Klinger at Budapest and later made by himself at Berlin under the name of Klingerite. There are now several makers of this class of goods on the Continent with whom Turner Bros., of Rochdale, England, are competing with their Permanite. The foreign firms which have depots in England are, of course, in a bad way, as they cannot get supplies. Moreover the general public feeling against the purchase of German goods is such that resumption on the conclusion of hostilities is hardly likely to be attended with success. To enlarge somewhat on this issue it may be mentioned that active steps are being taken by the Board of Trade in conjunction with traders all over the country to devise means whereby the German export of a variety of goods to Great Britain can be more successfully met by home competition. Though a great deal has been written in the daily and technical press with regard to various products I have not noticed any reference to rubber goods, such as electric cable and tires. I propose to revert to this topic on a future occasion at greater length and will only remark that in our enthusiasm to reorganize our business relations with the enemy, it should not be overlooked that we send to Germany every year goods to the value of 100 million sterling.

PERSONALITIES AND THE WAR.

As already mentioned, the ranks of rubber workers have been depleted by the calling out of the Territorials and by those who have enlisted in the new army. Few statistics are available, but it is stated that in the case of the Dunlop Rubber Co. the loss of men from this cause amounts to about one thousand. Perhaps sooner or later some account may be compiled of what the leaders of the industry have done on the lines referred to in the following paragraphs:

Colonel R. K. Birley, C. B., of Charles Macintosh & Co., Limited, retired territorial artillery, has taken over the position of Director of Army Clothing for the East Lancashire Division Territorials.

Lieutenant-Colonel Fallows, of the Leyland & Birmingham Rubber Co., Limited, is in camp with his battalion of the Lancashire Fusiliers Territorials.

Captain J. J. Shannessy, of the Midland Rubber Co., Limited, Birmingham, is in camp with the Royal Warwickshire Regiment Territorials.

Mr. Isidor Frankenburg has contributed £500 to the National Fund for Relieving Distress.

Mr. J. F. Moseley, of David Moseley & Sons, is on the list of special constables for Manchester.

Major Birley, R. A., whose name occurred among the British wounded in France, is a son of Col. R. K. Birley.

RUBBER CHEMICALS AND THE WAR.

Many industries have been crippled owing to the stoppage of chemical supplies from Germany and elsewhere. The rubber trade comes in this category though it has not been affected to anything like the extent experienced in other industries, as it draws comparatively little of its requirements from the Continent. Of the more largely used fillers oxide of zinc has been scarce and has risen in price. The bulk of our supplies comes from Liége, a town which has recently made history. Here the oxide

is produced by the Vieille Montagne Co. by the combustion of metallic zinc. The zinc ore which at one time was largely produced in Belgium now comes mostly from the company's mines in Sardinia, Sweden, England, etc. The principal producers of zinc ore and metal are Germany and America, and a business arrangement to control prices by limitation of output has now for some years been in existence between these countries. As zinc is a constituent of brass its export has been forbidden by the belligerent countries, the present stock in England being under the control of the government. This does not apply to the oxide. French zinc oxide manufacture has made great strides in recent years owing to the anti-white lead agitation, and this oxide has found its way into many rubber works in competition with the Belgian. The production of zinc oxide in the chemical treatment of complex zinc-lead ores is now a large industry in America, but somehow or other the product has not found favor with British rubber manufacturers. The present situation may prove of utility to American interests though, as our present supplies do not come from Germany, I am not disposed to be enthusiastic over America's prospects.

I am in much the same frame of mind with regard to another important rubber chemical, sulphur, to wit, which in the crude form comes to us so largely from Italy, or Sicily to be more definite, a country whose neutrality has meant more to us than has that of America. Unfortunately for the rubber trade sulphur is contraband of war and supplies from Sicily have been seriously delayed, leading to a shortage in England and to a considerable rise in price. America is now, of course, a large producer of sulphur by the Herman Frasch process from underground deposits, and I have heard the topic of American supplies discussed. I believe, however, that the contraband of war difficulty arises here also. All the private gunpowder works in England are now taken over to some extent by the government, and it is hardly likely that rubber works can augment their stocks from this source. A fair quantity of sulphur is produced in England as a by-product from alkali ammonium sulphate and gas works and no doubt this will be drawn upon to a greater extent than is customary in normal times. There are also sulphur deposits in Spain which with some more capital and energy might make more noise in the world than they have done in the past. I may add with regard to sulphur from Sicily that shipments have been vetoed by the Italian government, though the ship owners were quite willing to carry parcels already on board.

With regard to other chemicals the great majority are made in England and the imports from Germany can easily be dispensed with. The requirements in carbonate and oxide of magnesia, for instance, can be easily filled by English makers. It is only close competition from German makers that has led to the by no means large import of the foreign-made article. Again, as regards red sulphide of antimony the original makers of this chemical for the rubber trade are still in business and no doubt the two or three British firms which specialize in this can easily fill all requirements. Barytes has been coming to us from the Continent, but both the carbonate and sulphate are mined in large quantities in the United Kingdom. The litharge which has been coming from Germany can easily be replaced by the home product. Carbon is contraband of war, and I don't know what the position is with regard to the high quality carbon black which comes from abroad, chiefly from America. The heavier vegetable blacks are obtained from British works.

Generally speaking the dependence of the rubber trade upon Germany is very insignificant compared with some other trades, and no stoppage of work need be apprehended. The laboratory will be affected, however, as so many chemicals and a considerable amount of apparatus came from Germany, and the chemical dealers are filling orders very sparingly from stock. There is plenty of rubber available, but as zinc oxide has been fetching £45 per ton no doubt certain goods will be advanced in price.

PROHIBITION OF EXPORTS

By a proclamation of August 5 the exportation of warlike stores from the United Kingdom is prohibited to all ports in Europe and on the Mediterranean and Black Sea, with the exception of the ports of our allies. The list of substances is a long one, but the rubber trade is only directly concerned with the following,—Asbestos, telegraph and telephone cables, articles of camp equipment, vulcanized india rubber sheet, engine and boiler packings and uniform clothing and military equipment. The india rubber sheet no doubt refers to that used by the admiralty, though, of course, military ground sheets would come in this category as well as in that of camp equipment. I have not heard of any case where business has been done contrary to this proclamation, though it is conceivable that errors of judgment might arise through ignorance of what particular goods go to make up camp and military equipment. Under these wide headings no doubt we have riding mackintoshes, "gum" boots, surgical and druggists' goods, cycle and motor tires, aeroplane fabric, etc., etc. Though Spain is not among our allies, the prohibition is not extended to its ports, so that if desired business in the above goods may be done with that country.

In addition to the above proclamation another one has been issued having reference to trading with the enemy, any new transactions being prohibited. Some orders from Germany which came in during August were promptly refused by British firms, though some little difficulty has been experienced in finding out whether orders from Holland are really intended for Germany. With regard to reclaimed rubber, in normal times we export a good deal to Germany but take very little from her, while a good deal of reclaimed comes from Russia and France. The general position is that while the export business for our reclaimers has declined or, more accurately, vanished, the home business has increased owing to the failure of foreign competition from the Continent.

INCREASED USES OF RUBBER.

Among the principal objects of study by rubber specialists in the earlier part of this year were various schemes for the extended utilization of rubber. Prominent among these was the plan of Messrs. Dessau and Morrison, of London, for the laying of rubber pavement, with a view to eliminating the noise of city traffic. Previous to the commencement of the present hostilities an English patent was secured for the system in question.

Under the auspices of the Rubber Growers' Association of London a company was formed with a proposed capital of $150,000 for the purpose of exploiting this patent on the basis of plantation companies participating in the venture. It was proposed for them to furnish annually without charge during five years one-fifth of one per cent. of their output, in addition to a like further quantity at one shilling a pound. An aggregate output of 20,000 tons a year would have been sufficient to supply 40 tons free and 40 tons at the price named.

The financial situation has been changed by recent events, but the project will doubtless be taken up again later.

EXPECTED ADVANCE IN ENGLISH FACTORY PROPERTY.

Active measures are being taken by many English manufacturers to prepare for increased trade owing to the disturbed conditions on the continent. The fact is being recalled that the passing in 1907 of the English Patent and Designs Act was followed by marked activity in factory property, and similar conditions are anticipated as a result of the present complications. Reports from England state that firms in many branches of trade there are seeking factories in which to establish industries, from the operation of which they have in the past been excluded by the low quotations of foreign manufacturers.

THE BRITISH CENSUS OF PRODUCTION, 1907.

WHILE the report of the British Census of Production for 1907 has only recently appeared, its compilation has evidently involved considerable effort. Although modeled in a general way upon the American Census of Manufactures (which has been taken for 1899, 1904 and 1909), it is far more detailed. This is particularly the case with the rubber industry, in which the accessory trades have been separately shown; the items of "Miscellaneous Rubber Goods" and "Other Products" being of relatively small importance.

The total product of rubber goods made in British factories in 1907 is shown in Table A as equal to about 47 million dollars. To this amount should be added 34 million dollars, shown in Table B, for the production of nine industries reported separately as using some rubber, but which has not been segregated. The British production of rubber goods in 1907 was thus the equivalent of 80 million dollars, as compared with the reports of the United States Census of 1909, quoted by The India Rubber World in May 1912 (page 374), of 200 million for rubber industries, and about 125 million for accessory industries using more or less rubber.

It is of course probable that the amounts of production have since increased on both sides of the Atlantic, but the figures for 1909 and 1907 afford a basis of comparison.

COST OF PRODUCTION.

The cost of materials is shown, in respect to Table A, on a product of about 45 million dollars, as approximately 29½ million. This result equals about 66 per cent. on the value of output, or about 5 per cent. more than the average shown by the United States census of the rubber industry for 1909. The cost of material for the product of elastic webbing was about 60 per cent. of the value.

PERSONS EMPLOYED AND POWER USED.

In the various branches of industry shown in Table A, there were 21,556 wage earners and 2,483 salaried persons, making a total of 24,039. Of this number 23,424 were employed in factories with their own engines and 615 in workshops not using power. The power used by the former number represented 27,440 horsepower, distributed as follows: Reciprocating steam engines, 26,423; internal combustion engines, 951; water power, 42; other power, 24; total, 27,440 horsepower. The capacity of dynamos driven by reciprocating steam engines was 4,415 kilowatts ,and by other power 37 kilowatts, making an aggregate of 4,452. The amount of electricity purchased by the establishments whose product is shown in Table A was 613,000 Board of Trade units.

Altho in various instances the returns are not full in their details, the idea has been to make them of a more or less general character for the United Kingdom as a whole, so as to avoid the possible disclosure of particulars regarding certain firms.

Table A—British Production of Rubber Goods, 1907.

	Value in Dollars.
Waste and reclaimed rubber	$685,000
Rubber compounds and solution	255,000
Rubber substitutes	270,000
Solid and insertion sheet rubber (including all articles for mechanical and industrial purposes)	7,690,000
Machinery belting (including balata)	680,000
Hose and tubing of rubber, with or without other materials	2,670,000
Engine packings	170,000
Pneumatic tires	11,490,000
Solid tires	2,680,000
Elastic thread, cord, etc	2,230,000
Waterproof piece goods, garments, boots, etc., not separately distinguished	6,575,000
Waterproof garments	3,620,000
Rainproof garments	230,000
Rubber heels	1,570,000
Golf and tennis balls and sports requisites, etc	2,365,000
Hot water and air goods; medical, surgical and dental appliances	905,000
Miscellaneous rubber goods	2,835,000
Other products	450,000
Total of rubber manufactures	$47,370,000

Table B—Production of Goods Made Partly of Rubber, 1907.

ELASTIC WEBBING:		
Braids and cords	$3,315,000	
Suspenders, belts, stockings, etc	690,000	
Other textile manufactures	360,000	
		$4,365,000
ELECTRIC POWER AND LIGHTING CABLES:		
Rubber insulation	6,500,000	
Paper and bitumen insulation (some rubber used)	6,610,000	
Other insulation (some rubber used)	3,645,000	
		16,755,000
TELEGRAPH AND TELEPHONE CABLES:		
Submarine	5,510,000	
Land	4,045,000	
		9,555,000
Waterproof apparel		1,475,000
Druggists' sundries		610,000
Rubber stamps and accessories		150,000
Reservoir pens and stylographs		270,000
Rubber manufactures produced by engineering and cycle firms		600,000
Total of goods partly of rubber		$33,780,000

BRITISH ELECTRICAL INVESTMENTS.

A table published in the last (eighteenth) edition of "Garcke's Manual of Electrical Undertakings" illustrates the development of English electrical investments during the last seventeen years. In 1896 there were 200 concerns, with an aggregate capitalization equaling about $300,000,000; while the number of undertakings now reported on is about 3,000. The total capital outstanding in 1913-14 is said to represent about $2,100,000,000 or seven times the amount in 1896. In both cases the figures include shares, debentures and loans, together with the borrowings of municipalities for electrical undertakings, but do not include the value of the government telegraphs.

HERMANN MULLER & CO. CHANGE TITLE.

Hermann Müller, of the crude rubber firm of Hermann Müller & Co., 21 Mincing Lane, London, was granted permission on August 25 to change his name to Harvey Christie-Miller, and a similar change has been made in the firm name, which is now Harvey Christie-Miller & Co.

The Dunlop Rubber Co., Ltd., of London, has declared the usual quarterly dividend on its 6 per cent. cumulative preferred shares.

The Sirdar Rubber Co., of London, has introduced a new non-skid tire in which the metal studs are flush with the tread, in zig-zag depressions in the rubber. The claim is made that a tire of this class, without the additional protector, needs less inflation and allows greater resiliency.

Some Rubber Interests in Europe.

THE LATE MR. JOSEPH FRASER.

THE funeral took place at Allenvale Cemetery, Aberdeen, Scotland, on September 1, of Mr. Joseph Fraser, aged 62, long a prominent figure in the Ceylon planting community. His original experience had been in the application of fertilizers to tea, the large increase of yield per acre of late years having been largely due to his individual efforts. Subsequently he interested himself in rubber cultivation, in connection with which he repeated the successful results he had achieved with tea. Mr. Fraser was a director in fifteen companies operating in rubber, tea, coffee and cocoanut cultivation, including some of the most successful plantation concerns.

MR. C. A. LAMPARD ON SYNTHETIC RUBBER.

The ever-recurring subject of synthetic rubber was dealt with by Mr. C. A. Lampard at the recent meeting of the Rubber Plantations Investment Trust, Limited. He quoted the recent statement of an eminent rubber chemist to the effect that both of them would be in Heaven, or elsewhere, before the question assumed a practical shape. Mr. Lampard had taken up the position that as a commercial proposition it was impossible on the basis of cost. He likewise remarked that there was a distinct decrease in the receipts of the lower grades of wild rubber.

CONTINENTAL TIRES AND ENGLISH CUSTOMERS.

Soon after the declaration of war the Prowodnik Co. was obliged to call in its stock of goods in England. The tire made by this Russian company had made some headway in the British market during the last year.

The war has interfered with the receipt of new supplies by the Michelin English depot, but a fair business is reported by that company and other concerns in sales from stock. Owing to the partial stoppage of its French factory, the Hutchinson Co. has been unable to obtain further supplies from that quarter. They report having a supply of tires on hand sufficient for half a year's trade. Two of the directors are with the French army.

German tire manufacturers have been gradually depleting their English stocks. Disputes have arisen with some English customers as to the validity of their contracts with foreign houses, they claiming that their engagements are cancelled by the declaration of war. These discussions have been in most cases settled by the acceptance of the goods.

The Pirelli Co., of Milan, is in the fortunate position of having a good stock in London, while its manufacturing facilities are about to be increased by the opening of its new cable works at Southampton.

AFRICAN RUBBER IN THE LONDON MARKET.

The following information regarding the recent sales in African rubbers in the London market, has been sent to us by one of the prominent London rubber dealers.

"The African market here has been fairly steady during August and the beginning of September, 55 tons being sold during August and up to September 4. Assinee sheets and Strings were sold at 2*s.* [48.65 cents] per pound, *Elobez* Ball at 1*s.* 3*d.* [30.41 cents] per pound, Selected Gold Coast Lump at 1*s.* 1*d.* [26.35 cents] per pound, Niger Gutta at 9*d.* [18 cents] per pound, and Accra Paste at 8¾@9*d.* [17.50 to 18 cents] per pound. Nine tons of Lahon Cake was taken up by a dealer here last week at 1*s.* 7½*d.* [39.53 cents] per pound, which had been in store for some considerable time. The reported destination was Russia. There is at present very little rubber offering in the African market, only two or three small parcels of old Benin and Lagos Lumps being offered, for which 1*s.* 3*d.* [30.41 cents]@1*s.* 4*d.* [32.43 cents] per pound, is asked. Heilbut's bid of 1*s.* 2¼*d.* [29.39 cents] for 5 tons was refused.

LONDON AUGUST RUBBER STATISTICS.

London rubber imports for the eight months ended August 31 showed an increase as compared with last year from 19,699 to 27,274 tons, while the last two months exhibited a falling off from 3,418 tons in July to 3,091 in August. The last figures are chiefly of interest, because there is usually an increase of quantity at that period. Deliveries had, however, likewise fallen back from 3,225 tons in July to 2,810 tons in August, or to a somewhat larger extent than receipts. Meanwhile the total deliveries for eight months had grown from 18,723 tons a year ago to 26,972 tons, being in a larger proportion than the receipts. The London plantation stock had risen from 3,242 tons at the end of July to 3,523 at the end of August. The last named figure is said to be the largest since April last.

RUBBER GOODS OPENING IN ITALY.

In a report on the commercial conditions in Venetia, Consul James Vernor Long, stationed at Venice, states that football and lawn tennis, as well as other outdoor sports, are largely indulged in in that locality and that if American manufacturers could compete with the prices of other foreign houses and would give credit to dealers, they might find an opening for athletic accessories in the Italian market. He also believes there is an opening for the sale of rubber bedding for use in the hospitals on Sacca Sessola and La Grazia Islands.

The import duty is high, however, being $15 per hundred pounds, and prices must meet those of the Italian articles in order to compete. Samples submitted should be accompanied by quotations which include all charges, in Italian currency, and measurements based on the metric system.

TRADE OPENINGS IN AUSTRALIA.

The opening of the Panama Canal and the war afford opportunities to American exporters for the extension of their Australian trade. In 1903 Australian imports of American merchandise amounted to $28,886,278, of which $24,347,732 was imported direct. The total imports from the United States in 1912 were $52,384,257, of which $45,986,239 went direct from American ports.

In 1912 Australia imported rubber manufactures to the amount of $4,840,951, of which the United States only supplied $551,832.

RUSSIAN RUBBER EXPORTS TO THE UNITED STATES.

Reports from the various American Consular Offices in Russia show the following exports from that country to the United States during the last two years:

	1912	1913
Balloons	.....	$2,110
Reclaimed rubber	$26,347	536,974
Shoes	.....	14,164
Sponges	8,446	8,548
Tires	20,977	78,367
Waste	510,846	242,722

Reports from the Odessa consular district state that American automobiles are becoming popular in southern Russia, where about 500 cars were sold in 1913, most of them at prices from $1,288 to $2,318. Sixty American cars were registered last year in the city of Odessa, where seventy-five cars were sold during the year.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

A FRENCH PROCESS FOR RECLAIMING FABRIC IMPREGNATED WITH CAOUTCHOUC.

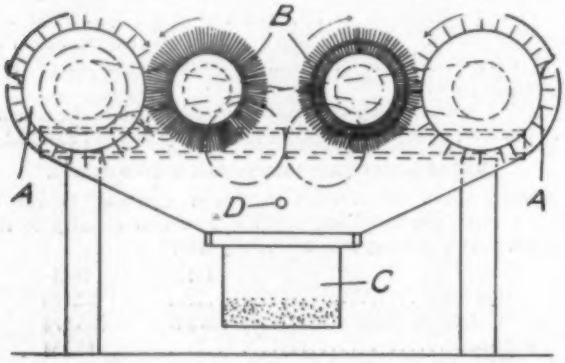
WHILE this country has led the world in the matter of reclaiming rubber, little attention has been paid to reclaiming fabric which may be impregnated with caoutchouc. As an example of this may be mentioned the fabric in which tires are wrapped while vulcanizing; which fabric becomes impregnated with vulcanized rubber, but does not contain enough to make the rubber of importance rather than the fabric.

According to French patent No. 460,273, the fabric may be recovered by taking advantage of the properties of certain solvents to greatly swell the vulcanized rubber and thus loosen it from the fabric. The solvent mentioned as suitable is xylol, in which the fabric is soaked for two or three days.

Xylol is a constituent of coal tar and is recovered with the benzol, but its price is beyond reach for any such purpose as this as it sells for over a dollar a gallon and is now unobtainable, while even before the disturbance of the chemical market it was very scarce and in great demand. There are many other like solvents, however, that might be used. Coal tar oils and naphtha, turpentine, pine oil, and in fact all the rubber solvents possess this property, as is well known. C. O. Weber recommended naphthaline nitrate or nitro-naphthaline as a solvent for rubber in analytical work and this would probably be effective here. The idea is to get the cured rubber loosened if not dissolved from the fabric.

When this swelling has taken place and loosening is effected there are several ways of procedure given to separate the rubber and fabric. If there is considerable rubber it may be broken from the fabric. There still remains the rubber on the surface or which has been frictioned into the fabric itself. To free the fabric it is brushed preferably with metallic brushes, and for this purpose the machine shown in the accompanying illustration is used.

The fabric is fed into the machine from either end, between a spiked holding roll *A* and a metallic brush *B*. The brushes revolve at a higher speed than the spiked rollers and loosen the



rubber from the fabric. The finely divided rubber falls into a receptacle *C*, while the solvent vapors are drawn off by an exhaust fan through a pipe *D*, and subsequently recovered by condensation.

It is said that by the application of a water soluble solvent for the xylol, such as acetone, that the rubber will be reduced to powder and the xylol thus recovered. It is evident that if the acetone were in turn removed with water it would tend to further disintegrate the rubber, or if steam were introduced to distil off the acetone the same result could be accomplished.

Considerable stress is laid on the value of the recovered rubber powder, though experience convinces that this would not amount to much, but the profits of the operation would be from the recovery of the fabric, if not entirely free from the rubber stains, at least clean enough for re-use as vulcanizing cloth or tape.

This is a subject which may be of interest to some of the large consumers of fabric for the above purpose, as it cuts down costs a little by conserving the raw materials of manufacture; and even a slight saving is important in the present fierce competition, which results in the cutting of prices down in some cases to bare production costs.

RECENT STATUS OF THE GERMAN INSULATED WIRE INDUSTRY.

PRACTICALLY all manufacturing industries in Germany, including the different branches of rubber manufacture, are, for the time being, of course absolutely paralyzed, and it is impossible to tell how long this paralysis will continue or how complete the ultimate recovery will be. This makes it all the more interesting to review the conditions in any line of rubber manufacturing as they existed just prior to the outbreak of the war.

As an accessory branch of the rubber manufacturing industry, the manufacture of electric wire has been subject in Germany to similar influences. Its development has been to a certain extent simultaneous with that of the rubber industry, properly so-called.

Germany has displayed a marked advance in the production and export of insulated wire. The exports for the last eight years have been as follows:

Exports of Wire Composed of Base Metal, Covered, Wound, Spun or Plaited: With Spun Threads in Conjunction with India Rubber or Gutta Percha:

	Tons.	Value Equaling.
1906	1,801	$2,026,500
1907	2,192	2,716,000
1908	2,320	1,865,000
1909	2,570	1,573,750
1910	3,360	2,057,000
1911	4,731	2,892,250
1912	7,115	4,322,500
1913	8,394	5,430,250

The figures of 1912 and 1913 include wire with other insulation than india rubber or gutta percha, the amount of which is understood not to have been large. The fluctuations in value in 1908 and 1909 are regarded as due to the crisis of 1907 and its after effects.

The total German export of insulated wire for 1913 thus represented more than $5,000,000, a similar quantity being absorbed by the German market. This aggregate output, exceeding in value the equivalent of $10,000,000, was the production of 25 factories, some large and others small. As in other branches of the rubber industry, augmented consumption led to increased production, thereby inducing keen competition.

Under these circumstances, the natural result was the reduction of qualities, efforts having been specially directed toward economies in the various compounds. The results of such a policy aroused criticism; and not only was the reputation of German insulated wire assailed but also that of the German electro-technical industry generally. There was no way of economizing in the copper conductors. In fact, the situation of the copper market would have warranted an advance, a like condition prevailing as to cotton. Moreover, by reason of the existing socialistic tendencies, demands for higher wages were naturally to be expected. Compounds, the rubber in which was exclusively regenerated, or with a rubber content as low as 8 per cent., were by no means rare. Hence, if the entire insulated wire industry was to be prevented from falling into discredit, a change was unavoidable.

At this juncture the Association of German Electrical Engineers prescribed a definite composition for rubber com-

pounds. In these efforts the association had the support of the more important factories, while in conjunction with the Royal Material Testing Bureau, the manufacturers formed a technical organization for testing the qualities of the products in co-operation with the buyers. The result was that, when not otherwise stipulated, all wire coming on the market fulfilled the requirements of the German Association of Electrical Engineers.

This settlement of the technical question involved did not, however, work in practice. While the "Normal Compound" was to contain 33.3 per cent. of crude rubber, with a proportion of resin not exceeding 6 per cent., it was only stipulated as to added substances that not more than 3 per cent. of their aggregate contents should consist of ceresine. In this respect there was perfect freedom accorded the manufacturers, so that some low-grade compounds were produced, of which one containing 34 per cent. crude rubber, 2 per cent. sulphur, 2.5 per cent. ceresine, and 61.5 per cent. chalk, was not the worst. Prices dropped two years ago to a level without profit or even showing a loss.

A combination was then formed by several concerns, operating with extreme caution, so as not to attract competition by excessively high prices. Moreover, the fact was recognized that a specially large investment of capital is not required for establishing a plant of this description. Prices were therefore fixed on a scale which only included a modest profit for manufacturers. The idea was further developed in the fall of 1913 by the establishment of a syndicate, in the form of the "Selling Bureau of the United Manufacturers of Insulated Wire." This syndicate had to arrange the prices so as to cover the profits of the dealers, power plants and installation firms (which are all under heavy expense), in addition to a manufacturer's profit of about 10 per cent.

When it came out with its prices the syndicate soon found the effect of foreign competition. It was realized that the foreign manufacturer with an import duty equaling only 5 per cent. could underbid the German maker who was looking for a profit of 10 per cent. These conditions were to some extent due to the expressions of the German electrical engineers, when the tariff of 1906 was in preparation, to the effect that they wanted no protection, the German industry being, in their view, so well fortified that it was not threatened by any danger from abroad.

Meanwhile the establishment of factories outside the syndicate increased the competition, as various of the existing large rubber factories took up insulated wire.

Under these circumstances, it was reported, even before the outbreak of the European war, that the syndicate, in spite of its good intentions and cautious plan of operation, would be obliged to consider the question of dissolution on its expiry next December.

THE GERMAN EMPIRE AND ITS COLONIES.

AS will be recalled, the German Empire proper consists of twenty-five states with a total of 208,780 square miles and a population in the aggregate of 64,923,993. Of these the most important are:

	Square Miles.	Population.
Prussia	134,616	40,165,219
Bavaria	29,292	6,887,291
Württemberg	7,534	2,437,574
Baden	5,823	2,142,833
Kingdom of Saxony	5,789	4,806,661
Hesse	2,966	1,282,051
Hamburg	160	1,014,664
Alsace-Lorraine	5,604	1,874,014
Total of eight principal states	191,784	60,610,307
Remaining seventeen states	16,996	4,315,686
Grand total	208,780	64,925,993

Out of the above grand total 28,092,117 persons were, according to the last census (that of 1907), engaged in the following callings:

Agriculture, cattle rearing, etc.	9,732,472
Forestry, hunting and fishing	150,785
Mining, metal works and other industries	11,256,254
Commerce and trade	3,477,626
Domestic and other service	1,736,450
Professions	1,738,530
Total in various callings	28,092,117

The remaining population of about 36 millions was composed of next-of-kin, without principal occupation and without income.

GERMAN IMPORTS AND EXPORTS.

The following table represents the German imports and exports for the last six years:

	Imports.	Exports.
1908	$2,019,273,250	$1,620,374,500
1909	2,215,102,500	1,714,673,250
1910	2,327,498,000	1,911,104,950
1911	2,501,736,250	2,056,095,000
1912	2,754,283,000	2,274,882,250
1913	2,673,750,000	2,478,150,000

GERMAN COLONIES AND DEPENDENCIES.

As compared with the area of the German Empire, 208,780 square miles, the colonies and dependencies of that country occupy, it is estimated, 1,027,820 square miles. Scattered over this wide extent of territory are about 24,389 whites and 12,041,603 natives. Thus there is about five times the area with about one-fifth of the population, of which only a small proportion consists of whites.

In 1912 German imports from its colonies equalled $13,225,000, while German exports to the colonies represented the equivalent of $14,325,000. During the same year Great Britain's imports from the same source were equal to $2,954,995 and exports to that quarter $3,477,105.

German colonies are located in Africa, Asia and in the Pacific, according to annexed table:

STATISTICS OF GERMAN COLONIES.

	Estimated Area Square Miles.	Estimated Population.
In Africa—		
Togo	33,700	1,032,346
Kamerun	191,130	2,650,591
German East Africa	384,180	7,651,106
German South West Africa	322,450	94,386
Total African possessions	931,460	11,428,429
In Asia—		
Kiauchau	200	168,900
In the Pacific—		
GERMAN NEW GUINEA:		
Kaiser Wilhelm's Land	70,000	
Bismarck Archipelago	20,000	
Caroline Islands	560	601,427
Palan or Pelen Island		
Marianne Islands	250	
Solomon Islands	4,200	
Marshall Islands, etc.	150	
SAMOAN ISLANDS:		
Savaii	660	35,136
Upolu	340	
Total Pacific possessions	96,160	636,563
SUMMARY.		
Africa	931,460	11,428,429
Asia	200	168,900
Pacific	96,160	636,563
Grand total	1,027,820	12,233,892

The proportion of white population in the three divisions is: Africa, 22,405; Asia, none shown; Pacific, 1,984.

In area the German colonial possessions are about one-third that of the United States.

Some Rubber Planting Notes.

CEYLON CONSOLIDATED RUBBER ESTATES, LIMITED.

ACCORDING to details submitted for the year ended March 31, 1914, there were in the above estates 1,166 acres in cultivation, on which were 142,931 Pará rubber trees, above one-half of which will be in bearing this season. In addition there were approximately, 200,000 Ceara trees, now tappable. More trees are coming into bearing than the estimate for 1914-15 was based on. The visiting agent's report gave an estimate for 1914-15 of 48,250 pounds of Pará, being 100 per cent. over the original estimate, while he believed he could get 20,000 pounds of Ceara rubber in six months' time. Up to March 31, 1914, a year's crop of 18,000 pounds dry rubber had realized 2*s* 1*d*. (50.68 cents) per pound.

PROSPECTS OF PLANTATION RUBBER INDUSTRY.

In discussing the above subject the "Home and Colonial Mail" of London remarks that the outlook for the plantation rubber industry is very reassuring, although there is considerable uncertainty as to the future of crude rubber generally. In the first place, Pará business, on account of its close relations with London finance, will be seriously crippled by the war. Then African trade, largely in Belgian hands, is normally centered in the Antwerp market, at present a negligible quantity. Again, there is the difficulty to be anticipated by planters in financing their crops, nowithstanding the measures taken by the Straits government and the readiness of Ceylon bankers to finance the rubber of their own trading community. A certain curtailment of supplies must therefore be looked for.

The question is then: will there be a corresponding restriction in consumption? On this subject it is remarked:

"This is a difficult question to answer. Fortunately, however, for the rubber industry, the chief center of manufacture is a country far removed from and not directly concerned in the war. America consumes roughly one-half of the total world's protection of rubber and for the present that country, together with ourselves, Italy and Japan will have to meet the demand for manufactured goods for the entire world. With the main source of supply under British control, there should be little difficulty in keeping both sides of the industry going with advantage to ourselves."

GROWTH AND QUALITY OF COCHIN CHINA RUBBER.

The last issue of the "Annals of Indo-China Rubber Planters" states that it is generally admitted that Sumatra is the country in the Far East where *Hevea Brasiliensis* grows most rapidly. The Malayan Peninsula holds second place, while several authorities give Cochin China a rank equal to Java and far in advance of Ceylon.

In the opinion of Mr. H. N. Ridley, formerly director of gardens and forests in the Straits Settlements, Cochin China is six months behind Malaya, but this disadvantage is offset by the complete absence of diseases in the former country. While admitting this backwardness in young trees, the "Annals" urges that trees seven to eight years old, though still in relatively limited number, are of the same height and circumference as those of neighboring countries. Even in the opinion of foreign experts *Heven Brasiliensis* has a normal growth in Cochin China and its yield in dry rubber is of excellent quality. Moreover, the product of the Belland and Suzannah plantations sells in Paris on a par with first latex.

A further proof of the character of Cochin China rubber is contained in the fact that at the Ghent Universal Exhibition of 1913 a prize was awarded for the collective exhibit of that country, including rubber from the Ong-yem (Government), Phu-Nhuan (Belland), Suzannah and Xatrach plantations.

POSTPONEMENT OF THE BATAVIA RUBBER EXHIBITION.

In consequence of the European complications, the Rubber Exhibition at Batavia, Java, has been postponed. It had originally been scheduled to open on September 7.

PROPOSED NEW RUBBER TESTING STATION FOR WEST JAVA.

Advices from Bandœng report that a meeting of important planters has been held there, with the object of establishing a new rubber testing station for West Java at Lampongs. Considerable interest has been manifested in the project and confidence expressed in the prospects of its success.

PONTIANAK RUBBER COMPANY'S SHIPMENT SEIZED.

At the recent London meeting of the Pontianak Rubber Co. Mr. L. Davidson, who presided, stated that the directors were passing through an anxious time on account of the war. Their last consignment had been despatched to London by a German ship, which was seized by the Belgians at Antwerp. Representations had been made to the authorities at that port, which, it was hoped, would result in the liberation of the shipment.

SUMATRA CONSOLIDATED RUBBER PAYS FINAL DIVIDEND FOR 1913-14.

At the meeting on August 10 of the Sumatra Consolidated Rubber Estates, Limited, the directors were authorized to pay the final dividend for 1913-14 on a date to be fixed at their discretion. In sending the warrants at the close of the month it was stated that they were enabled to take this course as the company's business had then resumed more normal conditions.

COLOMBO AND THE WAR.

During the cessation of the Colombo weekly tea and rubber auctions fairly extensive private sales were effected, in which reasonably good prices were obtained, there being, however, more demand for tea than for rubber.

The absence of competition and the cost of war risk insurance in other than British bottoms have increased the demand for space on board English vessels. On account of the extra charges thus incurred, many shippers have been more than usually cautious, and as a result a quantity of rubber is said to be still held back.

FINANCING OF NETHERLANDS INDIES PLANTATION SHIPMENTS.

It is reported that the Dutch authorities in the East have made arrangements for securing the local banks in Java and Sumatra for the advances they contemplate making to facilitate shipments of rubber. Advances up to 9*d*. (18.24 cents American currency) per pound for rubber produced on the estates will be guaranteed. Advances on title deeds are likewise guaranteed, restrictions as to mortgages in Sumatra having been removed. Estates compelled to reduce expenses will be assisted in sending their coolies back to their respective countries. The opinion entertained in London is that the arrangements made will enable all properly managed and soundly financed estates to weather the storm.

BAMBRAKELLY (CEYLON) TEA AND RUBBER CO., LIMITED.

This company has increased its yield of rubber from 16,540 pounds in 1910-11 to 133,955 in 1913-14 (from 765 acres), the estimate for 1914-15 being 165,000 pounds. With a cost f. o. b. of about 1*s*. 5*d*. (34.46 cents) per pound, and a net average realized of about 2*s*. 2¼*d*. (54.22 cents) per pound, a dividend for the year ending March 31 of 8 per cent. has been declared.

An interesting feature of the report received is an adhesive label attached to the cover with the following request: "When ordering motor tires, hot water bottles, tennis shoes, garden hose and other goods made from rubber, please make a point of stating that you wish them to be of *plantation* rubber."

This request is part of the campaign being conducted by the companies on behalf of plantation rubber.

RUBBER AND COCOANUT PLANTING IN MALAYA.

STATISTICS for 1912 and 1913, prepared by Mr. Lewton-Brain, Director of Agriculture, Federated Malay States, show an increased acreage under rubber of about 10 per cent., and an area one-third higher than before in cocoanuts. The exact figures are:

ACREAGE IN FEDERATED MALAY STATES.

	1912.	1913.
Rubber	399,197	433,324
Cocoanuts	30.308	40,175
Coffee	8,609	7,695
Other cultivation	3,068	4,133

The preponderance and growing importance of rubber in the Federated Malay States is thus illustrated. Coffee and sugar planting show a decline, the latter having practically gone out in various districts.

While the above table deals with the Federated Malay States alone, another return for the whole of the Malayan peninsula is of special interest.

STATISTICS OF MALAYA.

	1912.	1913.
Estates	1,055	1,151.
Acreage in possession	1,498,282	1,622,231
Acreage planted	621,621	708,545
Rubber alone	587,874	682,613
Rubber interplanted with catch-crops	33,748	25,932
Acreage producing	165,566	213,459
Planted during year	85,903	86,924
Output *tons*	18,956.8	28,169.16

STATISTICS OF MALAYAN PENINSULA, 1913.

	Acres Planted.	Output. Tons.
Federated Malay States	433,324	21,229.17
Straits Settlements	111,316	6,047.14
Johore	117,022	1,645.70
Kelantan and Kedah	45,373	246.18
Trengganu	1,510	not yet producing
Total	708,545	29,168.19

ESTATE LABOR.

The total number of laborers in 1913 was 282,354, as compared with 255,912 in 1912. Of the later year's number nearly 75 per cent. were employed in the Federated Malay States, the remaining 25 per cent. being distributed through the other parts of the peninsula.

RUBBER IN JAMAICA.

While dealing with the various other agricultural features of the island, the annual report of the Department of Agriculture, Jamaica, for the year ending March 31, 1914, contains several references to the cultivation of rubber. Jamaica, as will be recalled, has an area of 4,200 square miles, and the most successful variety of rubber for cultivation has been *Castilloa*. The distribution of plants for three successive years has been: 1911-12, 22,745; 1912-13, 5,878; 1913-14, 2,667. Most of these plants went to small settlers, with whom their growth has been satisfactory, but owing to the drop in the price of rubber from 12*s.* per pound in 1910 its present value of about 2*s.*, the opinion is expressed that few crops are at present raised in Jamaica with so meagre a financial return as that indicated for *Castilloa* rubber. Tapping of eight-year old *Hevea* was unsatisfactory and is said to have confirmed the view that *Hevea Brasiliensis* is not suitable for commercial cultivation in Jamaica, where any capital invested would have been lost.

Virgin rubber (*Sapium tolimense Jumelle*), owing to the length of time required to ripen, seems to have given results of a disappointing character.

The reports of the various public gardens in Jamaica constitute a feature of interest, as showing the progress being made in various forms of agriculture in the island.

EASTERN AND WESTERN AGRICULTURAL COLLEGES.

The claims of Ceylon as the site of the proposed Tropical Agricultural College have been urged by friends of the island, both in the colony and at home. At the recent London Congress of Tropical Agriculture the choice of Ceylon was advocated by Professor Wyndham R. Dunstan. In this connection interest attaches to a paper prepared for that occasion by Mr. Harold Hamel Smith, editor of "Tropical Life," in which he refers to his suggestion of April, 1913, for two colleges costing £100,000 each, three at £75,000 or four at £55,000 each. The aggregate cost of these colleges, Mr. Smith estimated, would not exceed 10 per cent. of that represented by a Dreadnought. Taking Professor Dunstan's later estimate of £50,000 as the prospective outlay for a Ceylon college the writer remarked that it should be duplicated in the West, where he advocated the establishment of another college in the West Indies.

Such an institution, it was added, could train men to go to West Africa to take up the Imperial work of forestry, as had been done with men trained at Trinidad who were better able to cope with local African conditions than if their education had been in the East.

At the same time Mr. Smith advocated sending to the East those embryo planters who were looking towards that quarter of the globe, adding:

"I am not urging the claim of the West Indies in competition with Ceylon. . . . On the contrary, if *pro tem*, there is to be only one college, then I agree that Ceylon should have it, but . . . our welfare as a trading nation . . . renders it quite as important that we should establish a college in the Western hemisphere as it is that we should have one in the East."

TRADE OF GERMAN EAST AFRICA.

The imports of German East Africa during the four years 1909 to 1912 equaled, respectively, $8,078,125, $9,200,790, $10,920,790 and $11,973,580, the trade being chiefly with Zanzibar and Germany. Exports principally consisted of rubber, copra, ivory and sisal; the amounts for the respective years representing $3,122,435, $4,951,685, $5,340,185 and $7,478,575.

According to the report of the Department of Commerce and Labor of February 28 last, wild and plantation rubber together occupy the leading position in the exports of the colony, the production of the former kind tending to decrease while the latter is rapidly growing in importance, having been taken up on a large scale by Europeans in the Kilimaniaro district west of Dar-es-Salaam and in the southern coastal area.

While *Kickxia, Castilloa, Hevea* and *Ficus* have been tried, the greatest success has been with *Manihot Glaziovii*. Exports of all kinds of rubber increased from 531,460 pounds, valued at $264,910, in 1908, to 2,653,035 pounds, valued at $2,005,436, in 1912. These figures indicate an increased production of the more valuable plantation variety of rubber.

The report of the British Consul at Dar-es-Salaam speaks of the setback which the rubber industry had experienced through the fall in prices which occurred in 1913, there being probably 19,000,000 trees planted in the colony of which about half were ready for tapping. Efforts have been made to meet the situation by the reduction of railway and ocean freights as well as by the abolition of import duty on the acids used in coagulating rubber.

By the latest accounts a slight improvement in the value of rubber had led, prior to the outbreak of the war, to the resumption of tapping by some planters. The German Colonial Economic Committee had been taking steps to introduce a standard quality of East African rubber, the absence of which has impeded the operations of planters. It is added that there is only one large washing and curing factory in the colony, at Muhesa, though several smaller ones exist at Usambara—the planters being obliged to wash the rubber themselves. This fact requires it to be again washed in Europe.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

WONDERFUL WEATHER—UNPRECEDENTED YIELD IN BALATA EXPECTED.

THE weather for August and September has been most remarkable. The rainy season is apparently not yet at an end, for plentiful and vigorous showers are still falling; and after some years of drought it will be understood how very welcome this state of affairs is, when it is stated that ordinarily the rainy season is at an end by the first of August. In the dry months the balata trees refuse to yield any latex, so that the present weather conditions are very much appreciated by the balata interests. There is every prospect of a bumper yield of balata this year.

Unfortunately, the cost of production is likely to be greatly increased on account of the higher prices of foodstuffs as a result of the war in Europe. Prices at once began to soar and the position became so serious that the government had to step in and fix maximum prices. Nevertheless, the prices fixed by the government are a good deal higher than normal. An even more serious trouble is the demoralization of the rubber and balata market in London and the apprehension that is felt of risking the shipment of large quantities of balata. A gentleman largely interested in the industry points out that there are large quantities of balata lying here, the proceeds from which are needed in circulation, but that the banks will only advance on it at a rate of interest of 6 per cent., and holding at the owner's risk, or if the balata is shipped the owner must pay the extra war risks. The banks cannot be blamed for taking this attitude. They cannot be expected to incur all the risks in handling balata for the sheer delight of assisting somebody else. The gentleman who has raised the question, however, wants to know why the government should not advance the money, take over the risk, and when the balata is released give the balance over to the owners. The simplest way out of the difficulty, of course, is to ship the balata and pay war risks, but the demoralization of the market is a serious obstacle.

The same difficulty is being experienced in the gold and diamond industries. I understand that the government is giving the matter the most serious consideration. It need scarcely be added that in the event of these colonial produce values lying dormant for some time there will be a small army of laborers making themselves very unpleasant on account of their wages. The government, however, has handled the affairs of the colony in so masterly a manner since the war broke out that it is not anticipated that this question will present any serious difficulties.

THE CUSTOMS REPORT—1913 A RECORD YEAR FOR BALATA.

The report for 1913 of the Comptroller of Customs, which has just been issued, shows that a record amount of balata was exported last year. The figures for the past five years are as follows:

	Pounds.	Value.
1909-10	1,034,076	$468,035
1910-11	1,162,588	670,192
1911-12	1,152,410	707,284
1912	705,214	407,424
1913	1,323,609	768,463

From the figures below it will be seen that rubber has not made such good progress, although in the next few years we may confidently look for infinitely better results:

	Pounds.	Value.
1909-10	6,369	$3,123
1910-11	1,157	900
1911-12	3,474	3,119
1912	216	143
1913	1,340	822

The balata crop of 1913 was exported to the following countries:

	Pounds.	Value.
United Kingdom	1,191,359	$687,435
United States	130,212	79,601
Germany	2,038	1,427

The comptroller says in the body of his report:

"The quantity of balata exported during 1913 was nearly double the quantity sent out of the colony the previous year. The increase amounted to 618,395 pounds, the rise in value being $281,039. The total exports of balata for 1913 were 1,323,609 pounds, represented by a value of $768,463. This is the largest amount of colony balata, both as regards quantity and value, that has been exported in any one trade year. The drought in 1912 retarded work in the up-country balata areas, and the state of the rivers in that year prevented a certain quantity from reaching Georgetown in time for exportation in 1912, so that the exports for 1913 were unduly inflated. Nevertheless the amount actually collected in 1913 was larger than in any former year. Unfortunately the price of balata fell considerably during 1913, and so the producers did not profit to the same extent as it was hoped they would with the increased yield. Balata is used for cables, golf balls, molds for electrical purposes, etc., and it would seem as if its price was regulated to some extent by the price of rubber, as the price fell in sympathy with that of rubber."

PROGRESS IN THE RUBBER INDUSTRY—TAKING PLACE OF OTHER CROPS.

Mr. E. H. S. Floyd, Canadian Trade Commissioner in the West Indies, says in a report which has just been submitted to the Canadian Department of Trade and Commerce: "The balata industry in British Guiana is on the whole in a healthy condition, though the product is being sold at cost price. The area covered in the cultivation of balata is being extended; estates that were previously under coffee, cocoa, fruit trees and sugar cane are now being utilized for rubber. An economical method of bringing an area of rubber up to bearing and one that is fairly general among the planters is to plant in catch crops among the young rubber and in this way reduce to a minimum the outlay necessary in the period required to bring the young trees to maturity. Considering the low price of labor in the colony it is believed that the areas now being extended will produce rubber at a price which will be remunerative, however low the ruling market price may be."

RUBBER SHIPMENTS FROM AMAZON VALLEY.

In a recent statistical return Consul George H. Pickerell, at Pará, showed the aggregate shipments of Brazilian rubber for the crop year ending July 31, 1914, as having been: To the United States, 40,936,545 pounds; to Europe, 44,707,700 pounds; total, 85,644,245 pounds. This total compared with those of previous years gives the following result, in pounds: 1912-13, 94,525,065; 1911-12, 89,957,410; 1910-11, 73,927,605; 1909-10, 86,178,685. The total for the last crop year was only slightly below the average of the last five years and only 9.4 per cent. below the figure for 1912-13. A more extensive falling off had been anticipated.

THE LATE PRESIDENT PENA.

The death on August 9, after protracted suffering, of Dr. Roque Sáenz Pena, President of Argentina, evoked many expressions of regret. He was elected in March, 1910, assuming office on October 12 of the same year, his term as president extending until 1916. Owing to his serious illness he had been of late replaced in the exercise of his duties by the Vice-President, Dr. Victorino de la Plaza.

His earlier experience had been as representative of his country at various international congresses, and likewise in a diplomatic capacity at several European courts.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED AUGUST 4, 1914.

NO. 1,105,608. Inflating device. S. E. Bennett, South Williamsport, Pa.
1,105,654. Elastic wheel. S. C. Hatfield, Baltimore, Md.
1,105,737. Collapsible core. J. K. Williams, assignor of one-half to Williams Foundry & Machine Co.—both of Akron, Ohio.

1,105,880. Tire shoe. T. W. Cooper, Caldwell, N. J.

1,105,958. Vehicle wheel tire. E. B. Brown, Los Angeles, Cal.

1,106,113. Tire for vehicles. M. D. Rucker, Purley, England.

1,106,238. Resilient tire. T. C. Papadopoulos, Dayton, Ohio.

1,106,290. Process of producing isoprene. R. B. Earle and L. P. Kyrikakides, assignors to Hood Rubber Co.—all of Boston, Mass.

1,106,302. Resilient tire. W. M. Heina, New York, N. Y., assignor of twenty-three and one-third one-hundredths each to E. V. Derks and E. Kammler, New York, N. Y., and A. R. Southworth, Westwood, N. J.

Design.

46,198. Water bag. F. F. Brucker, assignor to The Miller Rubber Co.—both of Akron, Ohio.

Trade Marks.

51,815. Bon Bon Co., assignor to The Sterling Gum Co., Inc., both of New York, N. Y. Panels of red outlined in black.

76,133. Greensburg Tire & Rubber Co., Greensburg, Pa. Illustration of, and the word, *Pyramid*. For inner and outer tubes for pneumatic tires.

76,134. Greensburg Tire & Rubber Co., Greensburg, Pa. The words *Red Wing*. For inner tubes for pneumatic tires.

76,329. The Santo Rubber Co., Wilmington, Del., and Pittsburgh, Pa. An Indian's head. For rubber aud gutta percha balls.

76,413. The Santo Rubber Co., Wilmington, Del., and Pittsburgh, Pa. The word *Santo*. For rubber and gutta percha balls.

76,414. The Santo Rubber Co., Wilmington, Del., and Pittsburgh, Pa. The word *Chief*. For rubber and gutta percha balls.

77,513. The National Tire Co., Trenton, N. J. The word *National*. For rubber tires and tubes.

78,558. C. J. Higley, New York, N. Y. The initials *C. J. H.* For hose supporters.

78,715. Sprague Sanitary Shield Co., Inc., Minneapolis, Minn. A cross within a circle. For sanitary shields.

79,367. The Mechanical Rubber Co., Jersey City, N. J. The word *Meruco*. For electrical insulating tape.

ISSUED AUGUST 11, 1914.

1,106,375. Elastic garter with leg covering means suspended therefrom. A. M. Grean, New York, N. Y.

1,106,506. Expansible collapsible tire core. L. Greenwald, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,106,527. Hat protector. P. Velardo, Somerville, and J. Velardo, Boston. —both in Mass.

1,106,542. Hose nipple. P. Buehner, Portland, Ore.

1,106,635. Hat pressing or blocking device. B. J. Diaz, Madrid, Spain.

1,106,701. Rubber tire. P. J. Ernenwein, New York, N. Y., assignor to Kelly-Springfield Tire Co., Jersey City, N. J.

1,106,748. Pneumatic tire. J. Stungo, Berlin, Germany, assignor of one-half to W. Schneider, Charlottenburg, Germany.

1,106,753. Rubber heel. J. Trischan, Chicago, Ill.

1,106,769. Resilient tire filling. S. M. Beery, Indianapolis, Ind.

1,106,812. Truck tire. H. V. Hollings, assignor of one-half to C. T. Jacobsen—both of San Francisco, Cal.

1,106,927. Nursing device. W. M. Decker, Buffalo, N. Y.

1,106,985. Compound cushion heel. J. J. Stritzel, Elma, Ia.

1,107,080. Removable rim attachment for vehicle wheels. M. Küller, Berlin-Lichterfelde, Germany.

1,107,092. Sectional wheel rim. B. W. Miller, Artesian, S. D.

1,107,219. Apparel corset. W. Kops, assignor to Kops Bros.—both of New York, N. Y.

Design.

46,244. Raincoat. N. M. Bush, Montclair, N. J.

Trade Marks.

76,361. Hecht & Co., Washington, D. C. The words *Marie Antoinette*. For shoes made of leather, rubber, etc.

77,721. W. F. Duryea, New York, N. Y. The words *De Co*. For fountain pens.

78,831. G. Elmendorf, Elmira, N. Y. The word *Elmendorf* on landscape sketch. For chewing gum.

79,375. The Stern & Saalberg Co., New York, N. Y. The word *Tootsie*. For chewing gum.

79,714. Maryland Rubber Co., Baltimore, Md. The word *Seal* over a drawing of the animal. For rubber coats.

ISSUED AUGUST 18, 1914.

1,107,355. Spring wheel. E. Rammelsberg, Dortmund, Germany.

1,107,397. Collapsible core. J. Yemiker, Akron, Ohio.

1,107,398. Collapsible core. J. Yemiker, Akron, Ohio.

1,107,404. Machine for cutting rubber gaskets. F. Brelle, Sr., and F. Brelle, Jr.—both of Ferndale, Cal.

1,107,439. Spring wheel. J. W. Nippert, New Brighton, Pa.

1,107,441. Vulcanizer. M. W. Olson, Galesburg, Ill.

1,107,508. Resilient vehicle tire. L. P. Flock, Fyffe, Ala.

1,107,641. Fountain pen feed bar. A. Badini, New York, N. Y.

1,107,672. Tire for automobiles. C. F. Kernen, Cincinnati, Ohio.

1,107,715. Brush with rubber suction bulb. E. L. Sharpneck, Winthrop, Mass.

1,107,719. Wheel rim construction. H. M. Snyder, assignor to Detroit Demountable Rim Co.—both of Detroit, Mich.

1,107,720. Wheel rim construction. H. M. Snyder, assignor to Detroit Demountable Rim Co.—both of Detroit, Mich.

1,107,819. Weather strip for wind shields of automobiles. A. L. McCormick, Louisville, Ky.

1,107,916. Elastic wheel. L. L. B. Denis, Paris, France.

1,107,982. Vehicle wheel. A. Moon, Fallon, Nev.

1,108,021. Gasketing tape. W. F. Taylor, assignor to General Asbestos & Rubber Co.—both of Charleston, S. C.

Designs.

46,273. Tire casing. J. H. Christian, Detroit, Mich.

46,282. Vehicle wheel tire. M. D. Kuhlke, Akron, Ohio.

46,283. Vehicle wheel tire. M. D. Kuhlke, Akron, Ohio.

46,284. Vehicle wheel tire. M. D. Kuhlke, Akron, Ohio.

Trade Marks.

71,189. American Rubber Co., Boston, Mass. The words *White Oak*. For rubber boots and shoes.

75,550. Giant Tire & Rubber Co., Omaha, Neb. The word *National*. For rubber inner and outer tubes for pneumatic tires.

77,635. Russian-French India Rubber, Gutta Percha & Telegraph Works, "Prowodnik Riga," Riga, Russia. An oblong design with the word *Columb* through the center.

77,947. B. Birnbaum & Son, Ltd., London, England. The word *Reinbo*. For raincoats.

78,532. Polack Tyre & Rubber Co., New York, N. Y. Picture of a man resting on a tire. For rubber tires.

78,763. Converse Rubber Shoe Co., Malden, Mass. Fanciful design which includes a tire. For rubber tires, casings, and inner tubes.

78,834. Giant Tire & Rubber Co., Omaha, Neb. The word *Trojan*. For rubber inner and outer tubes for pneumatic tires.

78,949. Lackland Bros., Fort Worth Tex. A seal with the word *No-Puck* across the top. For a tire puncture compound.

79,152. Imperial Rubber Co., New York, N. Y. The word *Innovation*. For rubber lined hose, rubber hose, tubing, rubber valves, and machinery packing.

79,362. Minto Co., Inc., Rochester, N. Y. A mint leaf between the words *Minto Gum*. For chewing gum.

79,670. The Johnstown Automobile Co., Johnstown, Pa. The word *Jaco* in white letters on a black background. For inner tubes, blow-out patches, tire boots and reliners.

79,927. The Pharis Tire & Rubber Co., Newark, Ohio. A little pickaninny seated on a rubber tire. For pneumatic tires and inner tubes.

ISSUED AUGUST 25, 1914.

1,108,177. Life preserver having inflatable bags. C. Horty, Elkhart, Ind.

1,108,290. Set of teeth with gutta percha base for practice work in dental surgery. F. D. Weisse, New York, N. Y.

1,108,389. Tire boot. W. F. O'Neil, Kansas City, Mo.

1,108,399. Tire compound. H. Santrock, Kensington, Kan.

1,108,427. Dress shield. E. M. Brennan, Brooklyn, N. Y.

1,108,546. Rim for wheels. P. B. Bosworth, Akron, Ohio.

1,108,632. Spring wheel for vehicles. J. F. Sipe and H. E. Sipe—both of New York, N. Y.

1,108,640. Valve for pneumatic tires. J. W. Taylor, assignor of one-third to G. A. Mohr and one-third to F. L. Fulton—all of Lansing, Mich.

1,108,702. Pneumatic wheel tire. M. Clark, Chicago, Ill.

1,108,703. Vehicle wheel tire. M. Clark, Chicago, Ill.

1,108,704. A resilient and non-puncturable tire. G. W. Calyville and D. W. Davis, assignors of one-third to W. B. Gray—all of Philadelphia, Pa.

1,108,743. Self-filling fountain pen. J. Gilbert, Victoria, B. C., Canada.

1,108,756. Life preserver. T. Himle, Santa Rosa, Cal.

1,108,778. Nursing bottle. S. D. Nichols, Roxbury, Vt.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1913.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 6, 1914.]

8,718 (1913). Band clips for rubber pipe connections. J. E. Pepper, 37, Waterloo street, St. Luke's, London.

8,719 (1913). Life saving suit comprising a central inflatable member. J. E. Moore, Nelson, B. C., Canada.

8,734 (1913). Cushion tire. W. Edgell, Westfield House, and A. T. Edgell, Redfield Road—both in Midsomer Norton, Somerset.

*8,757 (1913). Rubber compositions. J. W. Aylsworth, 223 Midland avenue, East Orange, N. J., U. S. A.

*8,766 (1913). Vehicle wheel with vulcanite pressure band. W. H. Harrison, 415 Chestnut street, Philadelphia, Pa., U. S. A.

8,776 (1913). Tire alarm signals. H. S. Christophersen, 26, Vestergade, Odense, Denmark.

8,777 (1913). Wheel tires. C. L. Cuthbe, 37, Great Eastern street, London.

8,781 (1913). Vulcanizing synthetic rubber. J. Y. Johnson, 47, Lincoln's Inn Fields, London.

8,782 (1913). Isoprene; ethers. J. Y. Johnson, 47, Lincoln's Inn Fields, London.

8,851 (1913). Sacks of caoutchouc and canvas for use in raising sunken ships. H. Purimon, Saint-Quay-Potrieux, Cotes du Nord, France.

8,888 (1913). A reversible heel pad. J. Giraud, 16, Rue Saint Ferréol, Marseilles, France.

8,895 (1913). Attaching wheel tires to rims. T. A. Barton and T. H. Barton—both of 73, Chilwell Road, Beeston, Nottingham.

8,917 (1913). A driving belt for motorcycles, etc., consisting of blocks of rubber, balata, etc. G. H. Hickson, "Rosedene," Austin avenue, Stockton-on-Tees.

8,918 (1913). Boot heel with india rubber bladder. G. T. T. Freeman, 60, Duncan Road, Southsea, Portsmouth, and F. H. Wills, 21, Mayfield Road, Seafield, Gosport.

8,940 (1913). Rubber backed ice grip for athletic overshoes. T. E. Beyer, 1, Dokowaja, Knabelnaja, Sebastopol, Russia.

9,003 (1913). Tread band for wheel tires. W. H. Stevenson, 1, Falkner street, Liverpool.

9,044 (1913). Wheel tire. H. Wade, 111, Hatton Garden, London.

*9,050 (1913). Flushing apparatus comprising rubber seating. G. De Rosa, 2393 First avenue, New York, N. Y., U. S. A.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 12, 1914.]

9,232 (1913). Rubber sleeve for bat and like handles. F. H. Lawrence, School of Gunnery, Shoeburyness, Essex.

*9,240 (1913). Vehicle wheel. W. A. Gehringer, Allentown, Pa., U. S. A.

*9,255 (1913). Pneumatic tires. G. A. Shaw, 528 Third street, Barberton, Ohio, U. S. A.

9,528 (1913). Rubber pedal pad. J. W. Burt, Holly Bank, Bothwell.

9,572 (1913). Rubber covered device for securing heel pads to shoes. Phillips' Patents, Ltd., and G. Phillips, 142, Old street, London, E. C.

9,591 (1913). Connecting rubber soles to felt or canvas shoes. New Liverpool Rubber Co., 292, Vauxhall Road, Liverpool, and I. W. Davies, 38, Whitham avenue, Great Crosby, Lancashire.

9,619 (1913). Detachable tread band formed of blocks of rubber, balata, etc. G. H. Hickson, "Rosedene," Austin avenue, Stockton-on-Tees.

*9,646 (1913). Tire attachment to rims. L. G. Fleming, 43 Wildey street, Tarrytown, N. Y., U. S. A.

9,762 (1913). Heel pad for boots, etc. J. Welch, 430, High Road, Streatham, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 19, 1914.]

9,795 (1913). Rubber holders for pencils, knives, etc. H. Siepel, Pforzheim, Baden, Germany.

9,872 (1913). Treating rubber, fabrics, etc., with smoke. T. G. Marlow, 138, Telford avenue, Streatham, London, and Pulsometer Engineering Co., Nine Elms Iron Works, Reading.

9,921 (1913). Protecting shield adapted to be fitted between the air tube and outer cover of wheel tires. L. Madlener, 5/111 Schellgasse, Frankfort-on-Main, Germany.

9,968 (1913). Rubber extractors. S. Goldreich, 18, Ropemaker street, London.

9,974 (1913). Advertising device comprising rubber covered friction rollers and rings. H. J. H. Fisher, 48, Guildford Road, South Lambeth, London.

9,985 (1913). India rubber substitutes. British Thomson-Houston Co., 83, Cannon street, London.

10,053 (1913). Tire alarm signals. A. Hay, Ecardenville-sur-Eure, France.

10,054 (1913). Rubber pad to prevent shoes slipping at the heel. F. Nab, 12, Schillingstrasse, Berlin.

10,068 (1913). Spring wheel with pneumatic cushion. C. K. Mills, 34, High Holborn, London.

*10,069 (1913). Detachable rim attachment to wheel. R. W. Funk, Weehawken, N. J., U. S. A.

10,109 (1913). Belt. J. Thompson, 24, Balmoral Road, South Shore, Blackpool.

10,179 (1913). Cushion tire. H. Diamant, 14, Westbourne Terrace Road, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 26, 1914.]

10,230 (1913). Wheel tire comprising a rubber cushion with an extensible core. W. C. Sneyd, 49, Darnley street, Brooks Bar, and R. Billington, 72, Market street—both in Manchester.

10,251 (1913). Squeegee blade formed of one or two sheets of rubber, balata, etc. E. Dyson, Brooke street, Bradford, Manchester.

10,256 (1913). Neck band of rubber to improve the singing voice and prevent stammering. G. A. H. Samuel, Abinger Cottage, New Beckenham, Kent.

*10,261 (1913). Life belt with inflatable bags. N. Martino, 1035 Tiffany street, New York, N. Y., U. S. A.

10,301 (1913). Inflatable life saving apparatus. K. Tanaka, 2, Furuishiba Machi, Fukagawa Ku, Tokyo, Japan.

10,315 (1913). Pneumatic tire cover. W. H. Hollis, 11 Pelham Road, South Tottenham, and A. J. Beaton, The Cottage, Cambridge Road, Hammersmith—both in London.

10,407 (1913). Wheel tire. St. Helens Cable & Rubber Co., Arpley, and E. S. Seymour, 42, Fairfield Road, Stockton Heath—both in Warrington, Lancashire.

10,461 (1913). Strengthening india rubber by introduction of threads. A. T. Collier, The Shrubs, London Road, St. Albans, Hertfordshire.

10,462 (1913). Athletic overshoe. New Liverpool Rubber Co., 292, Vauxhall Road, and C. Woollett, 176, Rice Lane, Walton—both in Liverpool.

10,505 (1913). India rubber tiles or sheets. W. A. Williams and North British Rubber Co., Castle Mills, Fountainbridge, Edinburgh.

10,521 (1913). Lay figure stand. E. Bennett, Oakwood Villas, West Dumpton, Ramsgate, Kent.

*10,564 (1913). Rubber cushioning sock for boots and shoes. L. W. Chamberlain, 106 Sudbury street, Boston, Mass., U. S. A.

10,571 (1913). Machine for coating fabrics with rubber, etc. A. Wood, "Westbury," Cowley Road, Uxbridge, Middlesex.

*10,578 (1913). Spring wheel, the interior surface being faced with a rubber strip. W. E. Robertson, Venus, Tex., U. S. A.

10,584 (1913). Lift valve comprising a hollow pad of rubber, etc. J. T. Garratt, 33, Leipsic Road, Camberwell, London.

*10,599 (1913). Life saving suit. J. W. Buchanan, Asheville, Buncombe, N. C., U. S. A.

10,613 (1913). Syringe; air compressor. A. Webster, 71, Great Tindal street, Ladywood, Birmingham.

10,652 (1913). Surgical appliance. E. Hörnle, 5, Bahnhofstrasse, Heidelberg, Germany.

10,673 (1913). Bottle closure comprising a disc packed with a rubber ring. E. C. R. Marks, 57, Lincoln's Inn Fields, London.

10,682 (1913). Tread projection for wheel tire. D. Maggiora, Hackbridge Park, Hackbridge, Surrey.

*10,688 (1913). Corset. M. L. Sobra, 47 West Ninety-third street, New York, N. Y., U. S. A.

*10,695 (1913). Vulcanizing india rubber. R. B. Price, 830 Park avenue, New York, N. Y., U. S. A.

10,712 (1913). Tire tube. H. E. Morgan, 933, Hay street West, Perth, Western Australia.

10,734 (1913). Wheel tire. J. H. Webster, Bridge street, Buxton.

10,737 (1913). Wheel tire. R. Strong, Farnborough, Hampshire.

NEW ZEALAND.

[ABSTRACTED IN THE PATENT OFFICE JOURNAL, JULY 16, 1914.]

34,384. Rubber ware repairing. S. Wilson, Robsart street, Parkside, S. Australia.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

468,169 (February 7, 1914). Mudguard for vehicles. E. Lucher.

468,233 (April 19, 1913). Tire for vehicle wheels. H. Petit.

468,245 (February 9, 1914). Process and appliance for the extraction of rubber. Caubel, Peigniat-Amauray, Guilier & Pannard.

468,115 (April 15, 1913). Production of watered (moiré) effects on rubber or other plastic substances. F. Berguerand & Co.

468,315 (February 11, 1914). Improvements in vehicle tires. St. Helens Cable & Rubber Co.

468,280 (February 10). Process of making artificial sponges in rubber and various objects having the same composition. A. Ducos.

468,358 (February 12). Tube for making tires, soft tubes, tubular bands and other similar objects, with their manufacture. Smith & Bolton.

468,409 (February 13). Process of making rubber substitutes. C. Lamberty

468,449 (February 14). Tire for vehicle wheels. H. J. Doughty.

468,558 (February 17). Elastic tire for vehicle wheels. C. A. Swinehart.

468,547 (February 11). Rubber heels. F. Marvy.

468,572 (February 18). Elastic tire for automobile and other wheels. E. Steenwackers.

468,575 (February 18). Protective cover for automobile tires. A. P. Borgarillo.

468,679 (January 27). Improvement in vehicle tires. J. Ure.

468,716 (February 13). Protection for tire covers. W. Petermann.

468,781 (February 21). Elastic tires specially applicable to automobiles and bicycles. C. Rosse.

468,785 (February 21). Mudguard protective hood for pneumatic tires. L. Bondon.

468,868 (February 24). Non-bursting partitioned air chamber, and plastic substance for vehicle tires, with its process of manufacture. H. Mustière.

468,634 (February 19). Improved method for repairing rubber objects. A. Bauer.

469,052 (February 18). Pneumatic wheel. A. G. Quélin.

469,151 (March 2). Heel in rubber and leather for the repair of footwear. "La Drome" Rubber Co.

469,210 (March 3). Improvements in tires. Wales Invulnerable Tyre Syndicate, Ltd.

469,253 (March 4). Improvements in detachable heels. C. Maher.

469,259 (March 5). Footwear with pneumatic sole. L. Kropf.

469,362 (March 6). New sole for footwear in rubber, vulcanized on felt. J. Massias.

469,377 (March 7). Improvements in tires for vehicle wheels. R. V. Stick.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

277,536, Class 4c (April 25, 1913). Improvements in hose valves. Ernst Müller, Schlesischestr., Berlin.

277,651, Class 28b (August 6, 1912). Air-filled rubber hose as a counter-roll for hide and leather working machines. A. H. Kehrhalm, Fürstenbergerstrasse, 177, Frankfort-on-Main.

277,653, Class 39b (April 17, 1910). Process for production of elastic masses from glycerine-gelatine. Julius Stockhauser, Crefeld.

277,985, Class 63c (March 2, 1913). Elastic tire, with interchangeable, reciprocally engaging segments, with lateral hollow spaces and a central auxiliary hollow space. Andrew Minetree, South Petersburg, Va., U. S. A.

277,986, Class 63e (October 1, 1912). Rubber tires for motor truck wheels, with metal guards attached to lateral rings. Dr. Carl Weidmann, Leichlingen, Rhineland.

277,987, Class 63c (March 6, 1912). Machine for manufacture of tire treads. De Laski & Thropp Circular Woven Tire Co., Trenton, N. J., U. S. A.

THE RUBBER SCRAP MARKET.

WHILE the earlier part of August in the waste market reflected the disturbed conditions in the sales of the crude article, the closing days of the month saw an improved demand with advanced prices. In the first days of September, however, there was some reaction, owing to reclaimers delaying operations in scrap. Still it was generally considered only a question of time when they would resume their normal attitude as consumers of waste.

Thus reclaimers were successful in establishing a lower range of prices for the raw material of their industry. Most large operators were firm in their views, but some of them accepted reduced prices for shoes in limited quantities. Towards the middle of the month, dealers were purchasing shoes more freely, being obliged to pay 6⅝ cents and offering as low as 6¼ cents for large lots. Owing to their difficulty in procuring supplies of shoes, many dealers were towards the close of the month holding them firm at 7¼ cents, though business with reclaimers was in some cases effected at 7 cents to 7⅛ cents.

In auto tires, business at the commencement of the month was completely stagnant, the offerings of holders at 5¼ cents meeting with no response from buyers. Manufacturers claimed to have been able to purchase auto tires on the basis of 4½ cents, but this report lacked confirmation, that price having in fact been lately paid by dealers. At the middle of the month, similar conditions prevailed, the market for tires being without animation, and the business done ranging from 4¼ cents to 5 cents. Later in the month reclaimers maintained that they could supply their requirements in auto tires at 5 cents and had in some cases offered 4¾ cents. Dealers were themselves offering 4½ cents, but found that price failed to attract quantities. No. 1 inner tubes could be purchased early in the month by consumers at 27 cents, while dealers were willing to buy at 25 cents. By the middle of the month, it was hard to find buyers at from 26 cents to 27 cents; and at a later period 24 cents to 25 cents was quoted, while dealers were willing to purchase in fair quantity at 24 cents for No. 1 and 14 cents for No. 2.

Early in the month small lots of bicycle and solid tires were taken by manufacturers at respectively 3 cents and 5 cents.

Colored scrap is not in demand, while hose is reported quiet at nominally unchanged prices.

Two lots of scrap hose were sold about the middle of the month by the Panama Railroad at its New York offices. One lot consisted of 2,562 pounds No. 1 scrap hose, including air brake and signal hose, and boots and shoes without leather soles, realizing 2.86 cents per pound. Another lot of 49,264 pounds No. 2 scrap hose included steam, water and pneumatic hose, bringing 75 cents per 100 pounds. S. Birkenstein & Sons, of Chicago, were the successful bidders.

Philadelphia reclaimers have been closely watching the situation, business having been light. At Boston there was a lack of important transactions, but the position of dealers was firm. Chicago manufacturers have been limiting their purchases to actual requirements.

RUBBER SCRAP PRICES PAID BY CONSUMERS FOR CARLOAD LOTS, NEW YORK, SEPTEMBER 28, 1914.

	Per Pound.
Boots and shoes..... *cents*	6¼@ 7
Trimmed arctics	4¼@ 5
Auto tires	4¼@
Solid tires	4¼@
No. 1 inner tubes.....	24 @25
No. 2 inner tubes.....	14 @15
Red tubes	16 @
Bicycle tires	2¾@ 3
Irony tires	2¼@
Mixed auto peelings	7¼@ 7¾
No. 1 auto peelings.....	8¾@ 9¼
Mixed white rubber.....	7¾@ 8¼
No. 1 soft white rubber.....	10¼@10¾
White wringer rubber.....	7¼@
No. 1 red scrap.....	9¼@
Mixed red scrap.....	6¼@
Mixed black scrap.....	2¼@ 2½
Rubber car springs.....	3¼@
Hose shoe pads.....	2¼@ 2¾
Matting and packing.....	½@ ¾
Garden hose	¾@
Air brake hose.....	2¾@
Cotton fire hose.....	2¼@ 2¼

NATIONAL ASSOCIATION OF WASTE MATERIAL DEALERS.

The annual meeting of the above association took place at the Hotel Astor, New York, on September 15; President Birkenstein, of Chicago, being chairman. There was a large attendance in the various sections.

SCRAP RUBBER.

The Gordon Rubber Co., of Chelsea, Massachusetts—incorporated August 4 with a capital stock of $10,000—will deal in scrap rubber of all descriptions.

H. L. Seigel, formerly with Max Goodman, of Chicago, has opened a warehouse at 1446-8 South Morgan street, where he will deal exclusively in all grades of scrap rubber. He has associated with him in business David Klein, for a number of years past with the firm of J. Klein & Son.

The Scrap Rubber Dealers' Club, most of whose members are also members of the National Association of Waste Material Dealers, held a meeting at the Hotel Astor, New York, on Tuesday, September 15.

Vito San Giacomo, proprietor of the New Jersey Rubber & Metal Co., of Newark, New Jersey, announces that an additional building 50 x 100 feet in area has been taken at 165-7 South Canal street, that city.

An adjourned meeting of the creditors of Joseph Gordon, scrap rubber dealer, of Trenton, New Jersey, will be held on October 9.

In the sale, by sealed proposals, at the navy yard, Washington, on August 27, N. Frank & Sons, of Baltimore, Maryland, were successful bidders, at 1.375 cent, for lot No. 3, which consisted of 7,000 pounds of old rubber hose.

Review of the Crude Rubber Market.

THE month of September continued the reaction from the sudden advance in rubber prices which marked the early part of August. Starting in August 1 at 70/71 cents, a sharp advance on August 5 brought the nominal quotation to $1.07/1.10, subsequently touching $1.25 on 14th. At that point a decline set in, which by September 1 had reached 77/78 cents, and by September 14, 69/70 cents, or slightly below the price on August 1. Following a similar course, the market has since dropped a further 6 per cent.; the rate on September 26th being 65/66 cents. This situation has been attributed less to any pressure of supplies than to the abstention of buyers, which last-named feature is expected to lead ere long to the depletion of manufacturers' stocks and their consequent renewal. On the other hand, there has been a feeling that the demand for high-class rubber goods is likely to diminish somewhat, with the result of a reduced demand for fine rubber. The statistical position of Pará is strengthened by the fact that English imports of that description for the eight months ended August 31 last were only 10,000 tons as compared with 12,862 tons for the corresponding period of 1913.

Plantation rubber imported by England from the three principal sources (Straits Settlements, Federated Malay States and Ceylon) aggregated during the above-named eight months 24,122 tons, against 19,399 tons for the corresponding months of last year, thus showing an increase of about 25 per cent. as compared with a falling off to about the same extent in the English imports of Pará. While the shipments of rubber from the East were more or less affected by financial disturbances, the fact that quantities of plantation rubber afloat were reported as, respectively, 8,250, 8,250 and 8,000 tons at the end of March, April and May, falling only to 7,500, 7,500 and 7,650 for June, July and August, indicates that shipments had not yet been appreciably reduced, up to the date of most recent advices.

Tracing the course of plantation prices since August 1, they will be found to have in a great measure reflected the movements of fine Pará rubber. Quotations, it will be recalled, had advanced from 56/57 cents on August 1 to $1.08 on August 5, receding on August 17 to 90 cents. Since then they have steadily dropped.

For fine Pará the highest price of the month (77/78 cents) was attained on September 1 and 2; the lowest point (65/66 cents) was reached from September 18 to 25.

Plantation reached the highest point (65 cents) from September 4 to 8 and the lowest (56/57 cents) from September 17 to 22.

The results of the war are shown by the fact that English exports of rubber for August were only 1,715 tons, against 3,587 in July, 1914, and 3,912 in August, 1913, indicating a falling off in continental demand. Aggregate English imports of rubber for the first eight months of 1914 were 44,427 tons, as compared with 46,421 for the corresponding period of 1913, the loss in the Brazilian and African quantities being more than offset by the increase in plantation rubber.

An auction of 360 tons plantation was held in London on August 25, which opened fairly, but displayed a falling off equaling 6 cents per pound towards the close. It had been contemplated to hold another sale towards the close of September, but this has been postponed.

Since the Amsterdam rubber sale of July 29, of 270 tons, no further auction has been held. The dates of the next sales at that port, and at Rotterdam and Antwerp have not been fixed. Business at Antwerp and the other continental centers is considerably affected by the war.

At the Singapore auction of August 12, only 8 tons were sold out of 63 tons offered. Most of the regular buyers were out of the market, in the absence of orders from Europe.

New York Quotations.

Following are the quotations at New York one year ago, one month ago, and September 30, the current date:

Para.	Oct. 1, '13.	Sept. 1, '14.	Sept. 30, '14.
Islands, fine, new	71@72	65@70	48@50
Islands, fine, old	.....	.....	50@52
Upriver, fine, new	80@82	75@80	63@65
Upriver, fine, old	85@86	.....	66@68
Islands, coarse, new	29@30	45@	26@28
Islands, coarse, old	.....	.....	.....
Upriver, coarse, new	48@49	55@60	44@45
Upriver, coarse, old	.....	.....	.....
Cameta	36@37	40@	28@29
Caucho, upper	48@49	50@	44@45
Caucho, lower	.....	.....	41@43
Plantation Ceylon.			
Fine smoked sheet	60@61	75@80	63@64
Fine pale crepe, near-by	52@54	70@75	61@62
Fine pale crepe, forward			59@60
Fine sheets and biscuits unsmoked	51@53	70@75	59@60
Centrals.			
Corinto	.....	50@	40@42
Esmeralda, sausage	40@42	45@	40@41
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	40@41	40@	40@41
Panama	.....	.....	.....
Mexican plantation, sheet	.....	.....	35@45
Mexican, scrap	40@42	45@	39@41
Mexican, slab	.....	.....	.....
Mangabeira, sheet	.....	.....	.....
Guayule	.....	55@	45@50
Balata, sheet	66@67	62@64	54@56
Balata, block	45@46	.....	43@47
African.			
Lopori, ball, prime	50@	.....	.....
Lopori, strip, prime	.....	.....	.....
Aruwimi	40@42	.....	.....
Upper Congo, ball red	45@46	.....	.....
Ikelemba	.....	.....	.....
Sierra Leone, 1st quality	45@46	.....	.....
Massai, red	.....	75@85	.....
Soudan Niggers	.....	36@46	.....
Cameroon, ball	35@40	.....	42@44

Benguela	.....	.....	.....
Madagascar, pinky	.....	.....	.....
Accra, flake	.....	.....	.....
EAST INDIAN.			
Assam	.....	.....	52@58
Pontianak	6@ 6¼	9@	8@ 9

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During September money market conditions as regards commercial paper have not changed much from those prevailing the latter part of August, as reported. Banks in this city have been almost entirely out of the market, and out-of-town banks have been only small buyers, with rates ruling at 7½@8 per cent. for the best rubber names and 8½@9 per cent. for those not so well known."

NEW YORK PRICES FOR AUGUST. (New Rubber.)

	1914.	1913.	1912.
Upriver, fine	$0.75@1.15	$0.84@0.94	$1.16@1.23
Upriver, coarse	.43@ .89	.51@ .53	.89@ .96
Islands, fine	.60@1.00	.74@ .81	1.06@1.13
Islands, coarse	.30@ .60	.29@ .33	.56@ .59
Cameta	.32@ .61	.38@ .41	.64@ .68

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

AUGUST 27.—By the steamer *Denis* from Pará and Manáos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	220,600	24,200	19,500	41,800=	306,100
General Rubber Co.	138,900	21,700	46,500	6,600=	213,700
Meyer & Brown	65,700	19,000	6,900	17,500=	109,100
Henderson & Korn	93,100	15,500	7,700	17,500=	133,800
H. A. Astlett & Co.	28,300	.....	24,400	21,100=	73,800
Robinson & Co.	49,700	.....	.....	.....=	49,700
Johnstone, Whitworth & Co.	38,900	.....	.....	.....=	38,900
W. R. Grace & Co.	.....	.....	.....	10,500=	10,500
Total	635,200	80,400	105,000	115,000=	935,600

SEPTEMBER 8.—By the steamer *Purus* from Pará:

Arnold & Zeiss	95,100	22,500	60,800	58,800=	237,200
Meyer & Brown	91,800	4,500	41,700	3,500=	141,500
Hagemeyer & Brunn	52,800	1,100	15,000	.....=	68,900
G. Amsinck & Co.	24,300	3,300	8,400	4,300=	40,300
H. A. Astlett & Co.	109,400	1,400	57,600	7,900=	176,300
Henderson & Korn	4,000	3,900	28,700	3,000=	39,600
Crossman & Sielcken	6,500	1,600	1,600	200=	9,900
Total	383,900	38,300	213,800	77,700=	713,700

SEPTEMBER 15.—By the steamer *Justin* from Pará and Manáos:

Arnold & Zeiss	83,000	13,000	15,100	56,800=	167,900
Meyer & Brown	79,700	29,200	38,200	20,900=	168,000
General Rubber Co.	29,600	.....	.....	.....=	29,600
Robinson & Co.	38,300	.....	.....	.....=	38,300
Henderson & Korn	154,000	28,000	34,400	23,000=	239,400
H. A. Astlett & Co.	9,600	.....	44,700	300=	54,600
Crossman & Sielcken	1,100	.....	15,800	138,200=	155,100
G. Amsinck & Co.	12,500	700	8,600	.....=	21,800
Total	407,800	70,900	156,800	239,200=	874,700

PARA RUBBER VIA EUROPE.

		Pounds.
AUGUST 29.—By the *Adriatic*=Liverpool:		
Johnstone, Whitworth & Co. (Fine)	33,600	
Johnstone, Whitworth & Co. (Coarse)	16,600	
Johnstone, Whitworth & Co. (Caucho)	67,600	
Arnold & Zeiss (Fine)	33,600	
Arnold & Zeiss (Caucho)	22,500	
Rubber Trading Co. (Fine)	6,000	
Various (Fine)	33,600	212,300
SEPTEMBER 1.—By the *Prins Der Nederlander*=Trinidad:		
General Export & Commission Co. (Fine)	6,000	
General Export & Commission Co. (Coarse)	1,000	7,000
SEPTEMBER 3.—By the *Maracas*=Ciudad Bolivar:		
G. Amsinck & Co. (Fine)	2,500	
G. Amsinck & Co. (Coarse)	700	3,200
SEPTEMBER 5.—By the *Cedric*=Liverpool:		
Earle Bros. (Fine)	4,500	
Johnstone, Whitworth & Co. (Caucho)	11,200	15,700
SEPTEMBER 8.—By the *Saxonia*=Liverpool:		
Arnold & Zeiss (Fine)	11,200	
Johnstone, Whitworth & Co. (Coarse)	13,500	
Various (Fine)	7,000	31,700
SEPTEMBER 14.—By the *Finland*=Liverpool:		
Johnstone, Whitworth & Co. (Fine)		4,500
SEPTEMBER 14.—By the *Zulia*=Maracaibo:		
General Export & Commission Co. (Fine)	33,500	
General Export & Commission Co. (Coarse)	10,000	43,500
SEPTEMBER 18.—By the *Matura*=Ciudad Bolivar:		
Yglesias, Lobo & Co. (Fine)	9,000	
Yglesias, Lobo & Co. (Coarse)	1,000	
G. Amsinck & Co. (Fine)	4,500	
American Trading Co. (Fine)	5,000	19,500

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		Pounds.
AUGUST 26.—By the *Tagus*=Colon:		
Mecke & Co.		2,000
AUGUST 29.—By the *Alliance*=Colon:		
G. Amsinck & Co.	5,300	
Pablo, Calvet & Co.	5,100	
Wessels, Kulenkampff & Co.	3,400	
American Trading Co.	2,200	
A. M. Capen's Sons	2,100	
Harburger & Stack	400	18,500
AUGUST 31.—By the *Esperanza*=Mexico:		
E. Steiger & Co.	1,200	
Harburger & Stack	300	
H. Marquardt	500	
Various	15,000	17,000
AUGUST 31.—By the *Esperanza*=Tampico:		
F. Narro	*80,000	
M. R. Avilo	*27,000	*107,000
SEPTEMBER 1.—By the *Proteus*=New Orleans:		
E. Steiger & Co.		2,000
SEPTEMBER 1.—By the *Esparto*=Colon:		
Isaac Brandon & Bros.		2,000
SEPTEMBER 2.—By the *Colon*=Colon:		
Laurence Johnson & Co.	10,000	
Isaac Brandon & Bros.	3,400	
G. Amsinck & Co.	2,900	
J. S. Sembrada & Co.	2,100	18,400
SEPTEMBER 8.—By the *Morro Castle*=Mexico:		
H. Marquardt & Co.	300	
Harburger & Stack	600	
Mexico Hide Co.	300	
J. A. Medina Co.	400	1,600
SEPTEMBER 8.—By the *Metapan*=Cartagena:		
R. del Castillo & Co.		1,500
SEPTEMBER 8.—By the *Camoens*=Bahia:		
Adolph Hirsch & Co.	52,500	
Rossbach Bros. & Co.	51,000	103,500
SEPTEMBER 8.—By the *Morro Castle*=Tampico:		
Madero Bros., Inc.	*33,500	
F. Narro	*33,500	*67,000
SEPTEMBER 11.—By the *Advance*=Colon:		
G. Amsinck & Co.	9,000	
Andean Trading Co.	5,200	
Wessels, Kulenkampff & Co.	2,000	
A. M. Capen's Sons	1,300	
W. R. Grace & Co.	1,500	
Mecke & Co.	1,000	
Pablo, Calvet & Co.	600	
Meyer Hecht	300	20,900
SEPTEMBER 11.—By *El Dia*=New Orleans:		
E. Steiger & Co.		2,500
SEPTEMBER 14.—By the *Monterey*=Tampico:		
Madero Bros., Inc.		*22,500
SEPTEMBER 14.—By the *Monterey*=Mexico:		
Steiger & Co.	4,000	
Harburger & Stack	1,500	
H. Marquardt & Co.	1,500	
Graham, Hinckley & Co.	500	7,500
SEPTEMBER 14.—By the *Zulia*=Maracaibo:		
G. Amsinck & Co.		500
SEPTEMBER 16.—By the *Panama*=Colon:		
Eastmond & Co.	10,700	
Andean Trading Co.	6,800	
J. S. Sembrada & Co.	1,600	
G. Amsinck & Co.	5,000	24,100
SEPTEMBER 18.—By the *Ulua*=Cartagena:		
Caballero & Blanco		4,500
SEPTEMBER 18.—By the *Commewyne*=Colombia:		
G. Amsinck & Co.		17,000
SEPTEMBER 18.—By the *Rio de Janeiro*=Bahia:		
Rossbach Bros. & Co.	40,500	
Laurence Johnson & Co.	6,500	
Adolph Hirsch & Co.	49,000	96,000

AFRICAN.

		Pounds.
SEPTEMBER 5.—By the *Cedric*=Liverpool:		
Henderson & Korn	18,000	
Earle Bros.	4,500	
Rubber Trading Co.	11,200	33,700
SEPTEMBER 11.—By the *Celtic*=Liverpool:		
Henderson & Korn	13,500	
Earle Bros.	9,000	
Robinson & Co.	2,200	24,700
SEPTEMBER 14.—By the *La Touraine*=Havre:		
Arnold & Zeiss		15,000
SEPTEMBER 14.—By the *Finland*=Liverpool:		
Arnold & Zeiss	35,000	
Johnstone, Whitworth & Co.	4,000	39,000
SEPTEMBER 14.—By the *Veniero*=Lisbon:		
Various		95,000
SEPTEMBER 19.—By the *Baltic*=Liverpool:		
Earle Bros.	9,000	
Henderson & Korn	2,000	
Rubber Trading Co.	11,200	22,200

EAST INDIAN.

[*Denotes plantation rubber.]

		Pounds.
AUGUST 29.—By the *Adriatic*=Liverpool:		
Henderson & Korn	*33,500	
Johnstone, Whitworth & Co.	*33,500	
Arnold & Zeiss	*36,000	
Raw Products Co.	*6,000	*109,000
AUGUST 31.—By the *Espagne*=Havre:		
Michelin Tire Co.	*55,000	
Henderson & Korn	*40,000	*95,000
SEPTEMBER 1.—By the *Ryndam*=Rotterdam:		
Rubber Trading Co.	*22,500	
Arnold & Zeiss	*4,500	
Robinson & Co.	*3,500	*30,500
SEPTEMBER 1.—By the *Minnehaha*=London:		
Johnstone, Whitworth & Co.	*385,000	
General Rubber Co.	*115,000	
Earle Bros.	*25,000	
Arnold & Zeiss	*12,500	
L. Littlejohn & Co.	*95,000	
Henderson & Korn	*85,000	
Robert Badenhop	*55,000	
Hood Rubber Co.	*100,000	
Charles T. Wilson	*47,000	
W. R. Grace & Co.	*4,500	
Raw Products Co.	*1,200	
Ed. Maurer	*50,000	
Various	*510,000	*1,485,200

September 5.—By the *Cedric*=Liverpool:

Various	*16,500

September 8.—By the *Rochambeau*=Havre:

Michelin Tire Co.	*33,500

September 8.—By the *Westerdyk*=Rotterdam:

Various	*1,000

September 8.—By the *Minnetonka*=London:

L. Littlejohn & Co.	*145,000	
Charles T. Wilson	*135,000	
Robert Badenhop	*80,000	
Hodgman Rubber Co.	*11,200	
W. R. Grace & Co.	*7,000	
Raw Products Co.	*11,200	
Fred'k Probst & Co.	*45,000	
Johnstone, Whitworth & Co.	*370,000	
S. R. Henke	*27,000	
Robinson & Co.	*26,000	
Earle Bros.	*25,000	
Rome Wire Co.	*11,200	
Ed. Maurer	*62,000	
W. Stiles	*13,500	
Rumsey & Greutert Co., Inc.	*4,500	
Meyer & Brown	*45,000	
Various	*240,000	*1,258,600

September 8.—By the *Mineric*=Singapore:

Ed. Maurer	*50,000	
Henderson & Korn	*100,000	
Ed. Boustead & Co.	*6,000	
Johnstone, Whitworth & Co.	*15,000	
Various	*195,000	*366,000

September 8.—By the *Croix*=London:

Henderson & Korn	*760,000

September 12.—By the *Montrose*=Singapore:

Ed. Boustead & Co.	*32,000	
L. Littlejohn & Co.	*12,500	
Johnstone, Whitworth & Co.	*8,000	
Various	*80,000	*132,500

September 14.—By the *Exter City*=Swansea:

Various	*50,000

September 16.—By the *Potsdam*=Rotterdam:

Various	*8,500

September 17.—By the *Menominee*=London:

Meyer & Brown	*285,000	
Otto Isenstein & Co.	*22,500	
General Rubber Co.	*210,000	
Arnold & Zeiss	*80,000	
Johnstone, Whitworth & Co.	*57,000	
Henderson & Korn	*11,200	
Earle Bros.	*16,000	
Charles T. Wilson	*6,000	
Ed. Maurer	*60,000	
Robert Badenhop	*10,000	
Various	*565,000	*1,322,700

September 18.—By the *Cretic*=Liverpool:

General Rubber Co.	*130,000

September 19.—By the *Baltic*=Liverpool:

General Rubber Co.	*72,500	
Meyer & Brown	*22,500	*95,000

CUSTOM HOUSE STATISTICS.

Port of New York—August, 1914.

	Pounds	Value.
Imports:		
India rubber	6,344,099	$3,020,880
Balata	173,896	92,806
Gutta percha	79,362	17,333
Gutta jelutong (Pontianak)	1,105,360	51,441
Total	7,702,717	$3,182,460
Exports:		
India rubber	5,474	3,400
Rubber scrap, imported	480,224	32,921
Rubber scrap, exported	117,043	13,684

BOSTON IMPORTS IN AUGUST, 1914.

	Pounds.	Value.
Gutta jelutong	191,580	$7,266
Gutta percha	23,232	2,387
India rubber	247,773	118,466

EXPORTS OF INDIA RUBBER AND CAUCHO FROM PARA, MANAOS AND IQUITOS DURING THE MONTH OF AUGUST, 1914.

	New York.					Europe.					Grand Total.
EXPORTERS—	Fine.	Medium.	Coarse.	Caucho.	Total.	Fine.	Medium.	Coarse.	Caucho.	Total.	
Zarges, Berringer & Co. *kilograms*	99,202	21,088	38,958	45,360	204,608	130,986	6,029	20,045	33,382	190,442	395,050
General Rubber Co. of Brazil	61,346	7,812	32,650	13,537	115,345	.....	.....	.....	.....	.....	115,345
J. Marques	129,195	11,298	63,972	27,388	231,853	25,120	4,466	5,997	4,449	40,032	271,885
R. O. Ahlers & Co.	31,719	1,170	4,555	1,087	38,531	6,739	.....	429	3,745	10,913	49,444
Suarez, Hermanos & Co., Ltd.	21,759	.....	.....	.....	21,759	.....	.....	.....	.....	.....	21,759
Pires, Teixeira & Co.	14,960	1,530	24,210	.....	40,700	20,740	.....	.....	.....	20,740	61,440
Adelbert H. Alden, Ltd.	.....	.....	.....	.....	.....	30,693	2,875	23,096	106	56,770	56,770
Sundry exporters	29,262	2,981	38,025	67,472	137,740	.....	.....	.....	.....	.....	137,740
Itacoatiara, direct	2,024	132	520	1,050	3,726	2,126	.....	.....	.....	2,126	5,852
Manáos, direct	389,467	46,011	202,890	155,894	794,262	216,404	13,370	49,567	41,682	321,023	1,115,285
Iquitos, direct	293,222	44,801	35,456	50,762	424,241	114,325	54,016	38,066	67,000	273,407	697,648
Total	682,689	90,812	238,346	306,656	1,218,503	330,729	67,386	87,633	108,682	594,430	1,812,933

UNITED KINGDOM.

Imports of Rubber—Six Months Ending June 30.

	1912		1913		1914	
From:	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
French West Africa	2,345,000	£320,911	1,672,300	£227,624	456,100	£43,674
Peru	1,922,000	365,841	1,561,800	264,629	1,044,400	131,100
Brazil	17,429,400	3,557,140	23,591,900	4,125,208	19,053,400	2,441,988
Gold Coast	1,053,800	116,810	1,273,000	127,073	444,500	37,142
Straits Settlements (including Lebuan)	11,017,200	2,502,688	15,891,000	3,089,916	21,092,700	2,457,917
Federated Malay States	6,074,100	1,399,658	10,450,100	2,059,961	11,403,900	1,327,827
Ceylon	3,780,300	899,416	6,102,900	1,212,732	7,987,800	931,983
Other countries	13,986,600	1,225,703	21,189,100	1,348,131	18,220,300	1,034,563
Total	57,608,400	£10,388,167	81,732,100	£12,455,274	79,703,100	£8,406,194

Re-Exports of Rubber—Six Months Ending June 30.

	1912		1913		1914	
To:	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Russia	4,169,500	£847,896	7,928,100	£1,413,775	8,422,400	£976,369
Germany	10,170,000	1,933,323	12,589,900	2,144,704	12,564,700	1,361,935
France	5,308,100	1,168,453	5,395,200	987,616	8,015,900	961,644
United States	17,340,500	3,527,088	17,703,100	2,789,477	29,196,300	3,271,147
Other countries	4,547,700	881,006	6,542,000	1,114,009	7,299,400	844,729
Total	41,535,800	£8,357,766	50,158,300	£8,449,581	65,498,700	£7,415,824

Gutta Percha—Six Months Ending June 30.

	1912		1913		1914	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Imports	2,839,536	£270,867	5,746,384	£596,190	3,742,880	£369,475
Re-exports	349,104	49,158	586,992	62,518	455,392	52,582

Plantation Rubber from the Far East.

Exports of Ceylon Grown Rubber.

(From January 1, to August 17, 1913 and 1914. Compiled by the Ceylon Chamber of Commerce.)

	1913.	1914.
To Great Britain ..... *pounds*	7,127,486	9,867,203
To United States	3,814,932	5,255,053
To Belgium	2,114,687	2,936,870
To Australia	321,249	339,603
To Japan	151,572	215,100
To Germany	138,152	1,037,415
To Italy	36,507	1,772
To Austria	27,946	.....
To Straits Settlements	20,064	42,535
To Holland	992	.....
To India	881	1,050
To France	...	250,712
To Russia	...	105,212
Total	13,754,468	20,052,525

(Same period 1912—6,957,230; same period, 1911—3,128,993.)

The export figures of rubber given in the above table include the imports re-exported. (These amount to 2,538,771 pounds—2,043,168 pounds from the Straits and 483,979 pounds from India.) To arrive at the approximate quantity of Ceylon rubber exported to date, deduct the imports shown in the import table from the total exports.

Total Exports from Malaya.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore, July 16.	Malacca, July 31.	Penang, June 30.	Port Swettenham, July 31.	Total.
Great Britain. *pounds*	11,807,317	2,902,409	8,885,467	14,519,990	38,115,273
Continent	1,663,069	30,424	418,800	1,801,598	3,913,891
Japan	601,047	.....	.....	.....	601,047
Ceylon	252,125	.....	583,067	986,294	1,821,486
United States	6,119,442	.....	520,400	136,590	6,776,432
Australia	38,407	.....	.....	.....	38,407
Total, 1914.....	20,481,407	2,932,923	10,407,734	17,444,472	51,266,536
Total, 1913.....	12,944,585	.....	6,988,266	15,202,528	35,135,379
Total, 1912.....	5,911,343	.....	3,966,968	9,998,195	19,876,506
Total, 1911.....	2,766,372	.....	2,266,216	6,401,716	11,434,304

PRICES OF CHEMICALS AND COMPOUNDING INGREDIENTS, SEPTEMBER 28, 1914.

VULCANIZING INGREDIENTS.

Sulphur.	Per Cwt.
Flour	$2.00@2.40
Flowers	2.20@2.60
	Per Pound.
Crimson antimony	$0.38
Golden antimony	0.28
French antimony	...
Vermilion	...
Black hypo	...
Sulphur chloride	0.08

FILLERS.

Zinc Oxide.	Per Pound.
American process	$0.05½
French process, red seal	0.06½
French process, green seal	0.07
French process, white seal	0.07½
French, imported	...
German, imported	...
Lithopone.	**Per Pound.**
American	$0.03¼@4

Magnesia.	Per Ton.
Calcined, domestic	$28.50@29.50
Calcined, imported	.....
Carbonate, domestic	21.00@35.00
Carbonate, imported	.....
Chalk.	**Per Pound.**
Light precipitated, light	.08@.10
Light precipitated, heavy	.07@.08
Barytes.	**Per Ton.**
Imported	.....
Domestic	$20.00 @
Whiting, per cwt.	00.45 @
	Per Pound.
Blanc fixe	$00.03⅛@
Litharge	00.05¼@00.05¾
Prepared lime	.....
Red oxide, orange mineral	00.07½@00.08½
Zinc sulphide	.....
Red lead, American	00.05¼@00.06
White lead	00.05¼@00.05¾
Lampblack	00.03 @00.07
Asbestos powder	.....
Pumice stone	.....
Vegetable black	.....
Graphite	.....
Ultramarine blue	.....
Colored pigments	.....

SOLVENTS.

	Per Pound.
Carbon bi-sulphide	$00.10 @00.15
Carbon tetra-chloride, drums	00.14 @
Naphtha	.....
Benzol, 90 per cent., drums Phila.	00.28 @

OILS AND WAXES.

	Per Pound.
Beeswax, yellow, crude	$00.30 @00.32
Ozokerite, refined yellow	00.25 @00.30
Parafine wax	00.04¼@00.04¾
Rape oil *per gal.*	00.95 @
Linseed oil, in carloads "	00.51 @
Vaseline	.....
Rosin oil *per gal.*	00.25 @
Glycerine, C. P. in bulk	00.25 @
Ceresin wax, white	00.15 @00.25

MISCELLANEOUS.

	Per Pound.
Shellac, fine orange	$00.24 @00.25
Mineral rubber	.....
	Per Ton.
Ground mica	.....
Powdered soapstone	.....
Talc, American	$15.00 @20.00

PARALLEL BETWEEN WASTE RUBBER AND RAGS.

In discussing the possible competition between synthetic and waste rubber the "Produkten-Markt" of Berlin states that if a really suitable synthetic rubber is produced, the rubber waste trade will not be killed but must expect a considerably lower range of prices. Similar conditions prevailed 35 years ago when wood-pulp was introduced in competition with rags and the rag dealers became alarmed at the prospect. Yet the rag trade is not dead, though the wood-pulp industry is prosperous.

Reference is made to an American statement to the effect that the rubber waste trade has never been so large as during the last few months, although prices have receded.

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CANADIAN NOTES.

The Beaver Tire & Rubber Co., Ltd., has been incorporated with a capital stock of $555,000 and will operate a plant at Calgary, Alberta, for the manufacture of tires, etc.

A by-law has been passed at St. Catherines, Ontario, by which the Marathon Rubber Co., of Akron, in return for the erection and operation in the former city of a plant costing at least $50,000 and employing at least 100 operatives at the start, is to be granted a five-acre site and a fixed assessment of $10,000 for ten years.

The J. F. Holden Rubber Co., of 699 Yonge street, Toronto, Ontario, has been appointed Canadian agent for Diamond tires.

The Gutta Percha & Rubber, Ltd., has been granted a permit for the erection of a factory on West Lodge avenue, Toronto, Ontario. Work on this plant—which is to be of steel and brick construction and to cost in the neighborhood of $100,000—will probably not be started for some time.

DOMINION SYSTEM EMPLOYES MAKE PATRIOTIC CONTRIBUTIONS.

Each employe of the Dominion Rubber System—which comprises the twenty or more branches and warehouses of the Canadian Consolidated Rubber Co., Ltd., and its factories in Montreal, Granby and St. Jerome, Quebec, and Berlin and Port Dalhousie, Ontario—will contribute one day's pay to the Canadian National Patriotic Fund for the assistance of dependents of soldiers in the field and on active service. As none of the factories of the System, which employs several thousand persons, have been shut down owing to the war, but rather are in some cases working ten hours a day instead of eight, the contribution will probably be a large one.

RUBBER PROSPECTS FROM AN ENGLISH POINT OF VIEW.

English investors are reported to be holding their rubber shares, except in cases where they are obliged by circumstances to realize. The opinion is generally entertained that such investments are on a better basis than they occupied before the war, owing to the various factors in operation.

Discussing the question of a possible shortage, Mr. H. N. E. Longworthy, chairman of the Mincing Lane Share Brokers' Association, has expressed the opinion that, in view of the reduced supplies of wild rubber to be anticipated, the falling off from that source will be a heavy one. That consumption is being maintained was shown by the fact that for the first week of September, English landings of plantation rubber had been 832 tons and deliveries 791 tons, the present London stock of plantation being 3,638 tons against 3,145 tons a year ago. This situation, in spite of the war, he regarded as decidedly satisfactory. Other features imparting strength to the market were the activity of the industry in America and in the north of England. In the latter quarter many plants are working to their full capacity.

Very few industries have received such help as has been afforded rubber planters through the action of the governments of the Malay States and the Netherland Indies in facilitating the shipment of rubber by the necessary financial arrangements.

A CEYLON CONTINGENT FOR THE ENGLISH ARMY.

At a recent meeting of the Ceylon Association, of London, it was stated that nearly a hundred applications had been registered for the proposed contingent of Ceylon men then in England. With regard to those enlisting, a resolution, proposed by Mr. C. A. Talbot and seconded by Mr. Arthur Lampard, was unanimously adopted, recommending all proprietors and directors of companies to allow enlisters half pay for six months, and to let them resume their employment at the close of the war. The question was, however, subject to reconsideration in the event of the hostilities lasting more than the above-named time.